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NOVEMBER, 1948

THE *Refrigeration* INDUSTRY

AIR CONDITIONING
EQUIPMENT

MERCHANDISING * INSTALLATION * MAINTENANCE

Man of the Month...

TURN TO PAGE 40



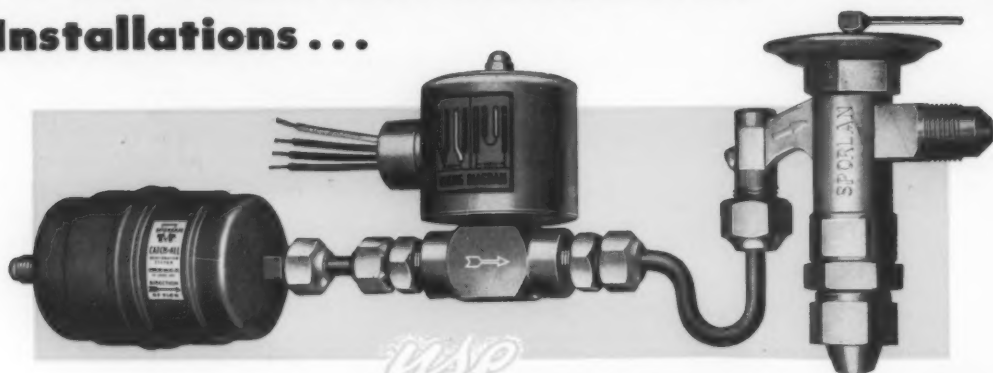
JAMES TERRY
Chairman of the Board
Dresco Refrigeration Co.
Detroit, Mich.

DON'T MISS:

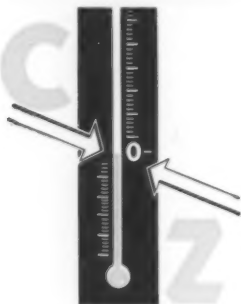
“CREATIVE SELLING CREATES PROFITS”... the fifth
in a series of “personality portraits” of men who have
built successful businesses in the refrigeration field

For Peak Performance

**on all Commercial Refrigeration
Installations . . .**



**REMEMBER
THESE SYMBOLS**



when ordering
**SPORLAN
THERMOSTATIC EXPANSION
VALVES**

from your wholesaler.

SPORLAN "C" CHARGE
for Suction Temperatures
ABOVE ZERO

SPORLAN "F" CHARGE
for Suction Temperatures
BELOW ZERO

Only Sporlan offers you
Thermostatic Expansion
Valves with Selective Charges!

use
SPORLAN
throughout!

SPORLAN Catch-Alls The most perfect Filter-Dehy-
drator ever developed. It Cannot Powder! It Cannot Pack!

SPORLAN Solenoid Valves

SPORLAN Thermostatic Expansion Valves

The only Thermostatic Expansion Valves with Selective Charges!

*When you buy Sporlan Products you can be sure that
they are designed and built to give the best performance
characteristics under all operating conditions . . . so*

*Use Sporlan Throughout on your very next job and see
for yourself what Peak Performance really means.*

FOR ALL SIZES AND TYPES OF
COMMERCIAL AND INDUSTRIAL REFRIGERATION APPLICATIONS

Sporlan Manufactures

SOLENOID VALVES • SOLENOID PILOT CONTROLS
MODULATING PILOT CONTROLS • REFRIGERANT DISTRIBUTORS
STRAINERS • CATCH-ALLS and the Only
THERMOSTATIC EXPANSION VALVES
with SELECTIVE CHARGES

You can install Sporlan Products with Confidence

SPORLAN VALVE COMPANY



3723 COMMONWEALTH AVE. • ST. LOUIS 17, MISSOURI

PAR

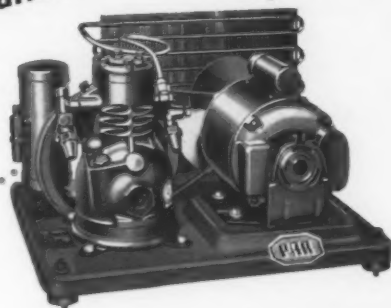
The popular

17

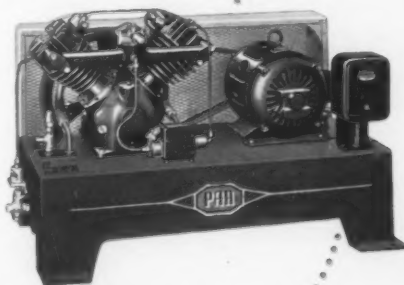
... 17 popular models ranging from small, compact
1/6 h.p. units for domestic and commercial
self-contained applications ...



The wide range of models and sizes of Par Condensing Units affords a proper type, proper size unit to permit "tailored installations" for maximum economy and maximum efficiency on each individual application. See your Par Wholesaler for a complete list of Par Units now available or write for illustrated Catalog R-99 for specifications and capacities.



to rugged, heavy duty 5 h.p. water-cooled units for commercial applications.



Par-Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

By Comparison — You'll Buy PAR

LYNCH CORPORATION

Par Compressor Division

TOLEDO 1, OHIO U.S.A.

SHORTAGE OF "FREON" ELIMINATED

Production of "Freon" safe refrigerants and propellents at the new Kinetic plant increases the supply approximately sixty per cent. This means that now there is plenty of "Freon" for every need. Users no longer have any reason for stock piling and thereby delaying the return of cylinders required for shipping.

The continued increase in the demand for "Freon" illustrates both an existing and growing preference for these superior refrigerants. Today, they are used by all the best-known refrigerating equipment and insecticidal aerosol manufacturers in the United States.

The uniform purity and quality of "Freon" . . . and the amazing dryness of these refrigerants (less than 10 parts of moisture in a million parts of "Freon") . . . help insure the long life and satisfactory operation of modern, compact refrigeration equipment.

In addition, because "Freon" refrigerants are nontoxic, nonflammable and nonexplosive, they are ideal for every type of commercial, industrial, and household refrigerating and air conditioning requirement. That is why—today—more and more buyers of equipment safeguard their investment by making sure that the installation is designed to utilize "Freon" safe refrigerants. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

*The need is still
urgent for
empty cylinders.
Please return empties
promptly.*



View of the new Kinetic plant in East Chicago, Ind. Here, elaborate equipment installations, technical skill, engineering "know how," and laboratory control of the "Freon" syntheses combine to produce ample "Freon" for every user.

NOVEMBER, 1948

VOLUME 5, NO. 11

THIS MAGAZINE has no official affiliation with ANY group, society or association.

IRVING B. HEXTER
President

LESTER P. AURBACH
Vice President

THEODORE T. QUINN
Editor

JAMES R. McCALLUM JR.
Associate Editor

WARREN W. FARR
H. S. McCLOUD
Editorial Advisors

WILLIAM V. LINAS
Production Director

E. J. HEXTER
Circulation Director

Address all communications to
THE REFRIGERATION
INDUSTRY

1240 Ontario Street
Cleveland 13, Ohio
Phone: Prospect 1251
Teletypewriter: CV-233

SALES OFFICES

CLEVELAND 13
1240 Ontario Street
L. L. OPPENHEIM

NEW YORK 18
19-25 W. 44th Street
Room 412
W. T. MOHRMAN

CHICAGO 1
64 E. Lake Street
Room 1013
SAM R. TRACY

LOS ANGELES 14
1250 Wilshire Boulevard
Room 403
FRED W. FRISENFELDT

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NOVEMBER, 1948



THE COVER . . . "Most people prefer Dresco" is Jim Terry's slogan. Turn to page 40 and read how our November "Man of the Month" has built a business which has made this slogan an accomplished merchandising fact, not just a vain and idle boast.

IN THIS ISSUE

FEATURES

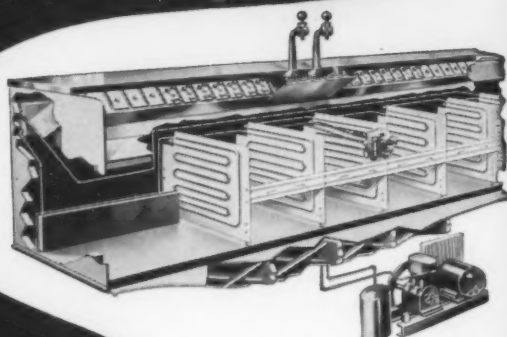
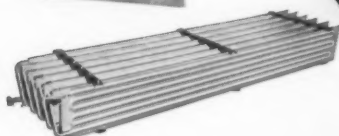
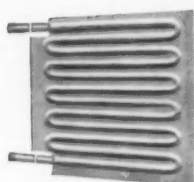
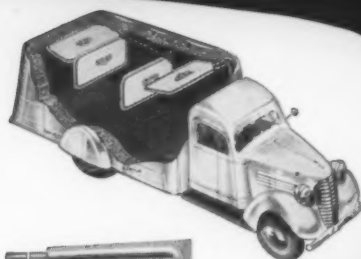
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The story of The Refrigeration Industry's "Man of the Month" for November.

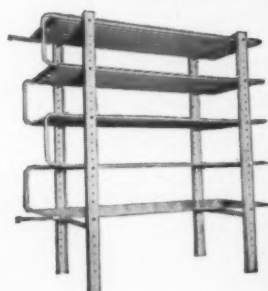
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This KOLD-HOLD Principle



applied in
these products



means PROFITS for you

KOLD-HOLD "Quick Action" Serpentine Plates have a multitude of applications . . . all profitable to the user. Used to equip new installations, or to convert out-dated ones . . . used separately, in banks, plate stands, or as cabinet liners, they assure you the following advantages:

1. Easy installation.
2. Maximum prime surface.
3. Highest rate of plate heat acceptance.
4. No possibility of short circuiting the flow of refrigerant, which flows in one continuous pass from inlet to outlet.
5. Oil logging positively prevented.
6. Minimum pressure drop.
7. Tested under pressure.
8. An appreciably higher "K" factor.
9. Thoroughly cleaned and dehydrated.

KOLD-HOLD

Jobbers in Principal Cities

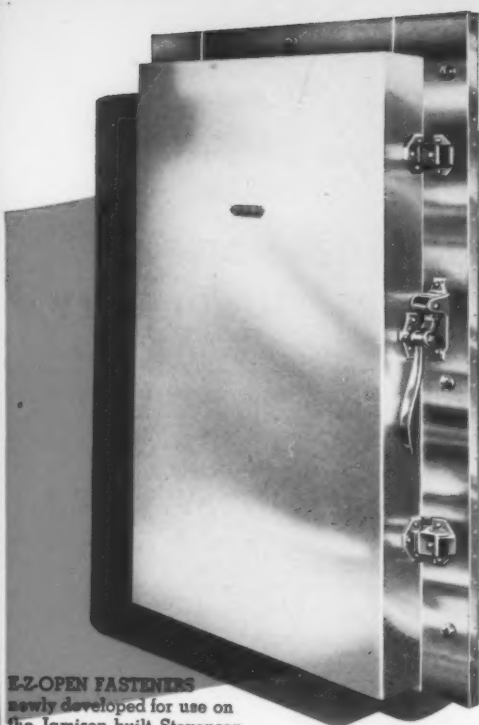
PROCESSING

TRANSPORTATION

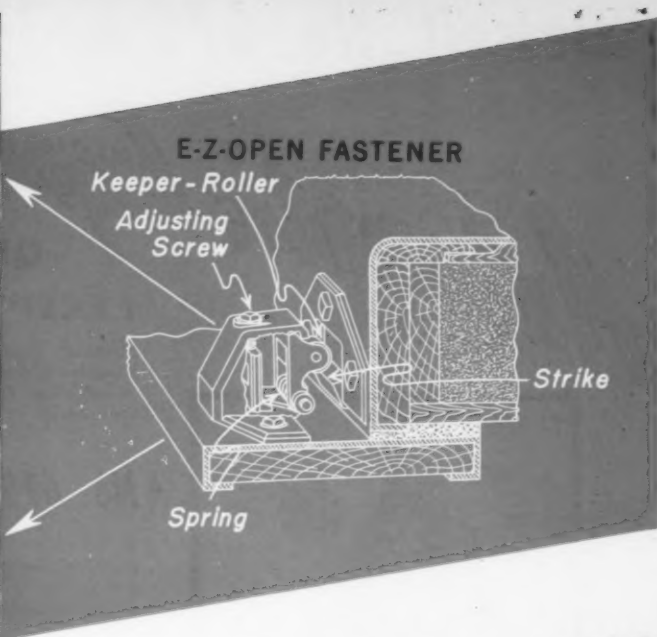
protects every step of the way

STORAGE

THE REFRIGERATION INDUSTRY



E-Z-OPEN FASTENERS
newly developed for use on
the Jamison-built Stevenson
Super-Freezer overlap-type door.



Get a better Seal with... E-Z-OPEN TWO-POINT FASTENING



Jamison Standard Door equipped with E-Z-OPEN FASTENERS, for moderately low temperatures. (Track Door illustrated)



E-Z-OPEN FASTENERS used on the Jamison Lo-Temp in fitting door for sub-freezing temperatures.

The Jamison patented E-Z-OPEN DOOR FASTENER is of simple design providing for long, trouble-free operation. Installed at the top and bottom of both in-fitting and overlap types of cold storage doors, it maintains positive and uniformly distributed gasket pressure when door is closed.

Only minimum effort is needed to open the door from the inside as well as the outside. Two handle mechanisms operate independently of each other, without a through rod connection.

Write for catalog showing our standard line, or look in the classified telephone directory for our branch nearest to you. Special doors can be built, regardless of size, character or duty, to your specifications.

Jamison Cold Storage Door Co.,
Hagerstown, Maryland



*The Oldest and Largest
Builder of Cold Storage Doors in the World*

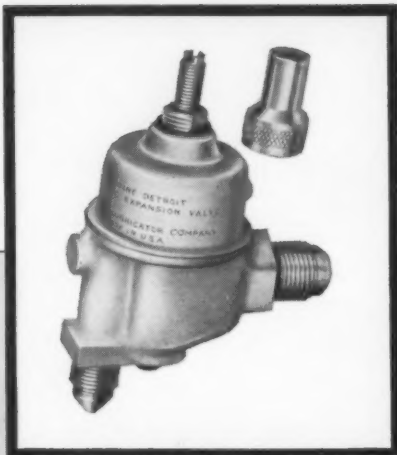
"Detroit" No. 672 and No. 892

Automatic Expansion Valve

QUICK RESPONSE

EXCEPTIONAL DURABILITY

"Detroit" Automatic Expansion Valves are compact, rugged, durable—quickly responsive to pressure changes and consistent in operation. They are designed for use on domestic and small commercial applications.

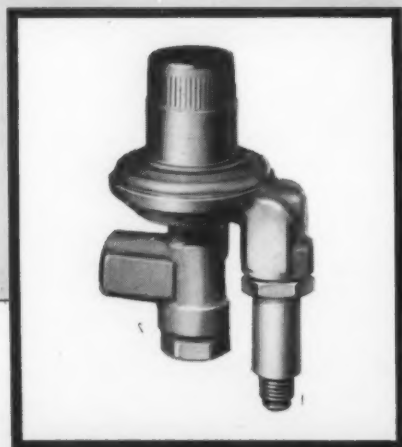


◀ No. 672 "Detroit" AUTOMATIC EXPANSION VALVE

Bellows construction makes this valve extremely sensitive to pressure changes and consistent in operation. Designed for use on domestic and commercial applications where close control of evaporator pressure is required.

Some Outstanding Features

1. Constant suction pressure—constant motor load.
2. Duraflex bellows for wide range flexibility, long life.
3. Swivel type needle—no rubbing—no leaks.
4. Brass cap and gasket seal—no moisture infiltration.
5. Single adjustment for pressure or vacuum setting.
6. Fluid dashpot eliminates chatter.
7. Delubaloy needle and seat for long wear.
8. Inlet strainer furnished with valve.
9. Two ranges: 25" vacuum to 25 lbs. and 5 lbs. to 50 lbs.
10. Inlet: $\frac{3}{8}$ " S.A.E. for $\frac{1}{4}$ " or $\frac{3}{8}$ " liquid line.
11. Outlet: $\frac{1}{4}$ " F.P.T. or $\frac{1}{2}$ " S.A.E.
12. Orifice: $\frac{1}{32}$ ", $\frac{5}{64}$ ", $\frac{3}{32}$ " or $\frac{7}{32}$ ".
13. Capacities: .35 to 3.6 tons Freon-12; .66 to 6.6 tons Methyl; .58 to 5.8 tons Sulphur Dioxide.



◀ No. 892 "Detroit" AUTOMATIC EXPANSION VALVE

Single diaphragm construction. Adjustable range 15" vacuum to 40 lbs. Inlet, $\frac{1}{4}$ " S.A.E. Outlet, $\frac{1}{4}$ " F.P.T. or $\frac{1}{2}$ " S.A.E. Capacity, $\frac{1}{2}$ ton Freon-12; 1 ton Methyl or Sulphur Dioxide.

5153

DETROIT LUBRICATOR COMPANY

DIVISION OF AMERICAN RADIATOR & Standard Sanitary CORPORATION

GENERAL OFFICES:

5900 TRUMBULL AVENUE • DETROIT 8, MICHIGAN

Canadian Representatives—Railway and Engineering Specialists Limited, Montreal, Toronto, Winnipeg



"DETROIT"

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Float Valves and Oil Burner Equipment
"Detroit" Expansion Valves and Refrigeration Accessories
Stationary and Locomotive Lubricators

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

BRUNNER
SINCE 1906

REFRIGERATION helps you serve better

Memo to Maintenance Engineers

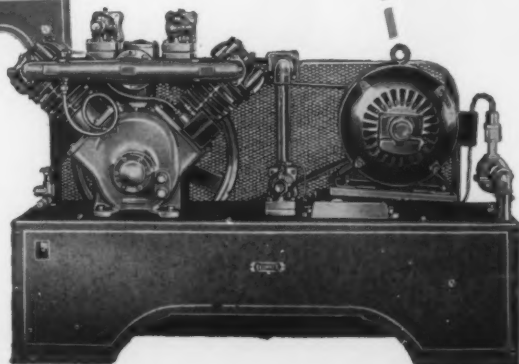
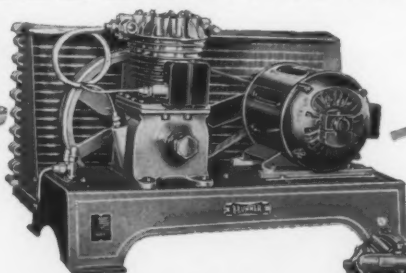
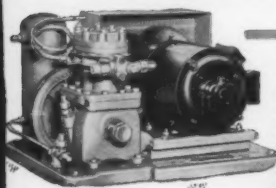
15% = 100%



'Tain't so you say, but consider this: often less than 15% of the installed cost of a refrigerated display case, walk in cooler or similar refrigerated equipment is represented by the actual refrigeration unit. Now think: the entire usefulness of that equipment and the value of their contents is *fully dependent* upon the uninterrupted operation of the refrigeration unit.

Your customers realize this. That's why they look to you, on both new and replacement installations, to provide refrigeration units that will give full usefulness and protection to their refrigeration dollars. Satisfied customers are your best source of income—protect it—install Brunner.

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.



BRUNNER
SINCE 1906

AIR AND WATER COOLED MODELS
1/4 HP. TO 25 HP.

Worthington SCY-5 00 Series Self-contained Air-Conditioner equipped with Allen-Bradley Bulletin 709—5 hp Solenoid Motor Starter.



WORTHINGTON



AIR-CONDITIONERS equipped with Trouble-Free Motor Controls



Allen-Bradley Bulletin 709SP—Single-Phase Automatic Solenoid Starter up to 5 hp, 22 v.

ALLEN-BRADLEY STARTERS ARE TROUBLE FREE. Only one moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

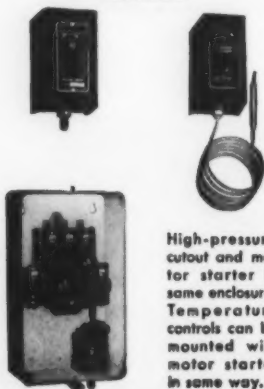
NO CONTACT MAINTENANCE. Allen-Bradley patented silver alloy contacts never need cleaning, filing, or dressing.

DEPENDABLE OVERLOAD RELAYS. Allen-Bradley thermal relays are accurate and dependable even after long service.

The A-B trademark stands for millions of trouble-free operations. Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wisconsin.

ALLEN-BRADLEY AIR-CONDITIONING AND REFRIGERATION CONTROLS

PRESSURE AND TEMPERATURE CONTROLS

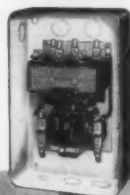


High-pressure cutout and motor starter in same enclosure. Temperature controls can be mounted with motor starter in same way.

MANUAL STARTER



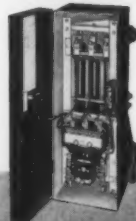
AUTOMATIC STARTER



COMBINATION STARTER



HEAVY COMPRESSION STARTER



ALLEN-BRADLEY

SOLENOID MOTOR CONTROL

QUALITY

New **IMPERIAL** **Hi-Duty**® **TUBE CUTTER**

**Free Wheeling Ball Bearing
Action Makes Tube Cutting
Easier and Faster**



Showing retractable reamer
in operating position.



Illustration (actual
size) shows tube
cutter being used to
remove a flare from
a piece of tubing.

Never before has there been a tube cutter that makes it so easy to cut tubing quickly, accurately, squarely. Outstanding advantages, illustrated at right, truly make this the finest tube cutter!

Cuts copper, brass, aluminum, Bundy steel, block tin and lead tubing, hard or soft temper. Has broad range—cuts tubing 1/8" to 1" O.D. inclusive.

Extremely compact—overall length, only 4 1/2". High strength, lightweight aluminum alloy body. Makes quick, clean, right angle cuts. Leaves no burrs or chips.

Here is a tool you'll be proud of. It is built to the quality standards which for years have made Imperial Tube Cutters the overwhelming favorites. Ask your jobber for it . . . and others in complete Imperial Tubing Tool Line. Ask for Folder 347.

No. 274-F Hi-Duty Tube Cutter for 1/8" to 1" O.D. tubing, inclusive. Net wt. approx. 6 oz. Price each... **\$3.30**

THE IMPERIAL BRASS MFG. CO.

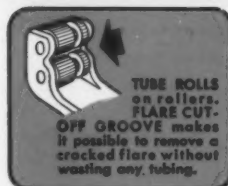
534 S. Racine Ave., Chicago 7, Ill.



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FITTINGS • VALVES • FILTERS • DRIERS • FLOATS • CHARGING LINES
TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF AND SWEDGING.

*See
Your
Jobber*



here's a compact profit-maker for your shop or truck

Gilmer
#355

Assortment of
50 Most Popular
V-Belts



This means more profits for you! The foundation of a complete V-Belt department hangs on your shop wall, or in your service truck. It's a carefully selected assortment of the most popular V-Belt sizes—50 Gilmer V-Belts that fill most of your customers' requirements.

In minimum space . . . with minimum investment . . . the Gilmer #355 V-Belt

Assortment gives you replacement belts that are famous for accurate fit, firm grip and long life.

With the Assortment you get all the valuable merchandising aids shown below. Order Gilmer Assortment #355 from your Gilmer Distributor . . . or write direct for further particulars.

GILMER POWER SUPPLY CORDS FOR REFRIGERATION SERVICE

Now Gilmer offers a line of heavy-duty supply cords for refrigeration applications. Each cord individually packed in cellophane, comes with complete description on sleeve.

REPLACEMENT CORDS —

in 8-, 10-, 12- and 25-foot lengths. One stripped open end; male plug attached.

EXTENSION CORDS —

in 10-, 15-, 25- and 100-foot lengths. Male plug at one end, female at other.



APPROVED BY UNDERWRITERS' LABORATORIES

Buy through your Gilmer Distributor

L. H. GILMER COMPANY, Tacony, Philadelphia 35, Pa.

DIVISION OF UNITED STATES RUBBER COMPANY



Gilmer #355 V-Belt Assortment includes...

50 assorted V-Belts and 8-hook metal wall rack.



Gilmer Handi-meter (patented) for quick measuring of belts.



Gilmer V-Belt Catalog



Inventory card



Window display card

125 HP Century Type SCH motor driving a refrigeration compressor in a fruit warehouse.



Get Maximum Use of
the Horsepower You Buy — with
Century
TYPE SCH MOTORS
for Refrigeration Compressors . . .



30 HP Century Type
SCH 1750 RPM motor.

High starting torque with low starting current is the outstanding characteristic of Century Type SCH motors.

Century type SCH polyphase induction motors supply the high starting torque necessary to start reciprocating compressors under full load, without over-motoring the running load. With Century SCH motors often a size smaller can be used than is necessary with a normal starting torque squirrel cage motor.

Century builds a wide range of kinds and types of electric motors for every heating, cooling and ventilating application — in sizes from 1/6 to 400 horsepower.

Specify Century motors for all your electric power requirements.

Popular types and standard ratings are generally available from factory and branch office stocks.



CENTURY ELECTRIC COMPANY
1806 Pine St., • Saint Louis 3, Missouri
Offices and Stock Points in Principal Cities



Only

THERMOBANK

by **KRAMER**

*Keeps Coils Frost-Free
Automatically
at Any Temperature
without*

LABOR
ATTENTION
ELECTRIC HEATERS
BRINE OR WATER SPRAYS

KRAMER TRENTON CO. *Trenton 5, N. J.* **WRITE FOR BULLETIN R147**

THE RIGHT COMBINATION FOR QUICK SALES—QUICK PROFITS

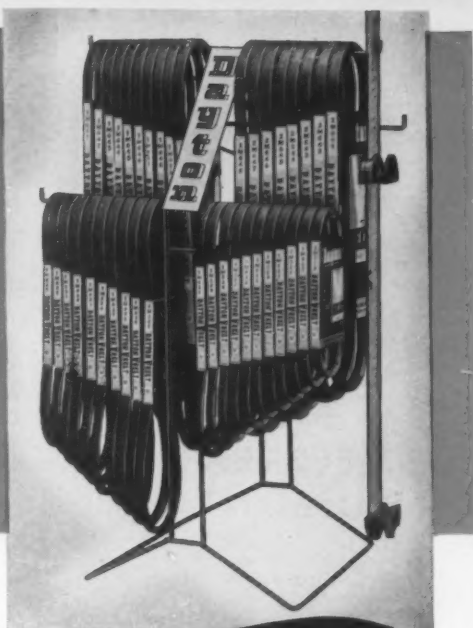
DAYTON FHP V-BELTS

plus a DAYTON

SENIOR SALESMAKER



In addition, you get ...
Wall & Window Streamers,
Counter Cards, Decals and
Many Other Helpful
Selling Aids!



SENIOR SALESMAKER

WITH 39 FASTEST SELLING
DAYTON FHP V-BELTS

Brings a 40% Dealer Profit Margin

Consumer Net.....	\$50.63
Dealer Net.....	\$30.36
	\$20.27

YOU CAN'T BEAT THE DAYTON COMBINATION!

Dayton Salesmakers, painted in bright attractive colors, plus Dayton fractional horsepower V-Belts pave the way to easier, more profitable sales. Compact, eye-catching, Dayton Salesmakers are a complete, fractional-horsepower service department. Easy to erect, they are arranged so customers easily select their own size belt . . . all you do is "ring up" the sale.

Daytons are known from coast to coast as the V-Belt

with Raytex Fortified Cords . . . specially processed Rayon. That's why Dayton V-Belts have minimum stretch, greater flex strength and longest V-Belt life. Included in each package are up-to-the-minute merchandising aids designed to label you headquarters for DAYTON—the recognized name V-Belts.

Tie in now with the Dayton line for fast, profitable V-Belt sales. Write Dayton Rubber, Dayton, Ohio.

ATTENTION DISTRIBUTORS: You, too, Can Tie in Profitably with Dayton
... Write Nearest Dayton District Office for Details.

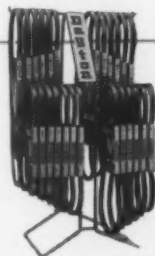


MAXIMUM COVERAGE SALESMAKER

178 belts . . . 122 sizes designed to service 99% of your customers. This is the ideal assortment for those dealers situated in areas where customers can't come in too regularly . . . advise them to "Carry-A-Spare".

DAYTON JUNIOR SALESMAKER

Here is the assortment designed especially for those dealers with a limited traffic. All merchandising aids, Matchometer, catalogs, etc., are contained in this package with 25 of the fastest selling Dayton sizes.



Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

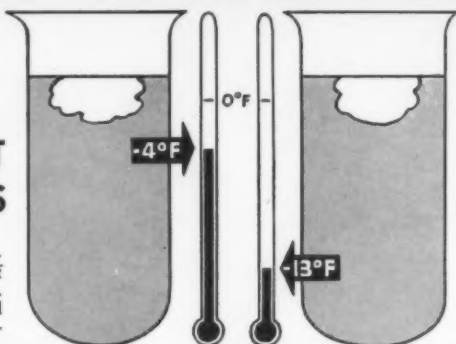
The Ansul Research Staff

CONTINUING REPORT ON:

WAX SEPARATION FACTS

SAME OIL but DIFFERENT SHIPMENTS

An example of wax separation in two samples of presumably the same oil. Both tests were prepared with a 10 per cent concentration of oil in the refrigerant. Sample on the left separated wax at -4° Fahrenheit while the sample on the right did not separate wax until -13° Fahrenheit. In purchasing oils for low temperature refrigeration, specify wax separation temperature.



by the
Ansul
Wax-Oil
Separation
Method

● The temperature at which wax separates from an oil in oil-refrigerant mixture is influenced by three determining factors:

1. The nature of wax in the oil.
2. The amount of wax in the oil.
3. The amount of oil in the oil-refrigerant mixture.

Different oils possess different wax separation characteristics.

The nature and amount of wax content vary in different oils and may even vary in different samples of supposedly the same oil taken from different shipments.

These inconsistencies confuse the engineer in his

efforts to select or recommend suitable lubrication for low temperature refrigerating systems and, to alleviate this condition, Ansul Chemical Co. is ready and anxious, at all times, to co-operate with refrigeration engineers and refrigeration service engineers.

REMEDIES

To eliminate wax trouble in expansion valves and coils:

1. Use an oil which separates little or no wax from its mixture with the refrigerant at the operating temperature of the valve.
2. Install an oil trap to cut down the amount of oil (and consequent wax) circulating with the refrigerant.



SEND FOR THIS BULLETIN

An informative reprint, "The Separation of Wax from Oil-Refrigerant Mixtures," will be sent on request. No obligation... just address...

*REG. U.S. PAT. OFF.



ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

Samples of refrigeration oils, submitted by users of Ansul Refrigerants to Ansul Wholesalers, are tested by Ansul laboratories without charge by the Ansul Wax Separation Method. This method, developed and standardized especially for use in connection with oils used in refrigerating systems, provides an accurate determination of wax separating from oil-refrigerant mixtures at low temperatures.

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

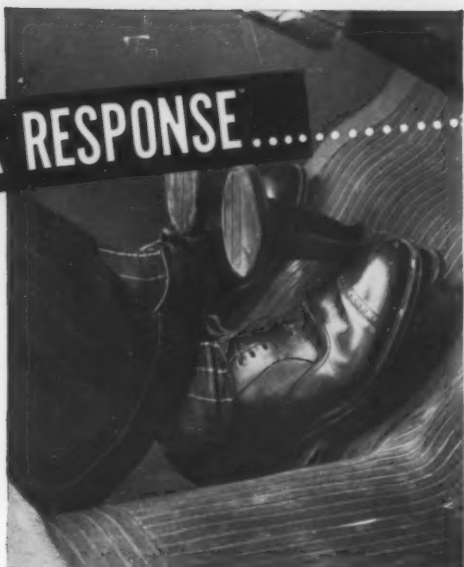
ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22," "FREON-113" AND "FREON-114"

QUICK RESPONSE.....

the
precision-throttling
action
of
**ALCO
THERMO VALVES**



Alert Alco Thermo Valves get better results from refrigeration systems by controlling the refrigerant flow more accurately and dependably. Reasons:

- ▶ **Minimum moving parts mean less friction and wear, quicker response to slight changes in superheat**
- ▶ **Cupped diaphragm has no welds in flexing area — prevents loss of thermal charge**
- ▶ **Rugged, corrosion-proof internal parts, precision-built for easy interchangeability**

Capacities: $\frac{1}{4}$ to 50 tons, "Freon-12";
 $\frac{1}{2}$ to 100 tons, methyl chloride. Choice of
2 to 36 outlets in multi-outlet models.

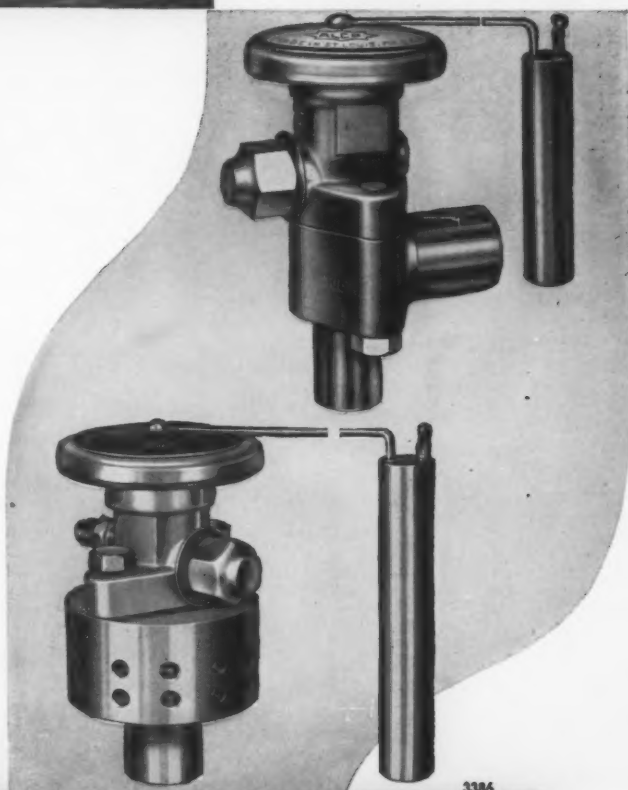
Available from your nearest Alco wholesaler
Ask for Bulletins 171 (single outlet) and
180 (multi-outlet).



Designers and Manufacturers
of Thermostatic Expansion
Valves; Evaporator Pressure
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Float Valves; Float Switches.

ALCO VALVE CO.

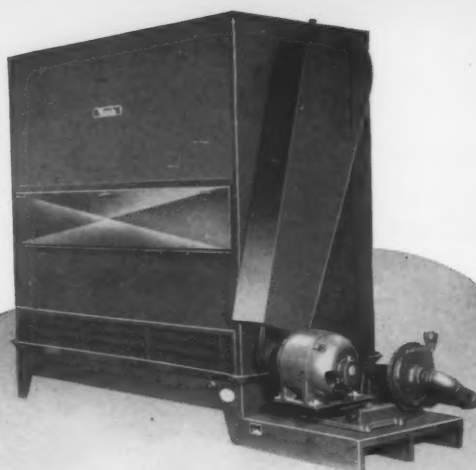
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3386

**A dollar's worth
of water-cooling**

...for a nickel!



That's right — Marlo Cooling Towers save 95 cents out of every dollar of normal water cost — solve supply and sewage problems — by using the same water over and over.

For example:

In Straub's ultra-modern Clayton Plaza Market, St. Louis, one Marlo CT15 indoor cooling tower cools the water necessary for refrigerating the ice cream freezing, hardening and storage rooms, vegetable, meat and frozen food storage rooms, using Marlo products exclusively. Despite this heavy load, the rugged construction of the Marlo Cooling Tower assures many years of dependable low-cost service.

For lasting economy specify...

**MARLO COOLING TOWERS
and EVAPORATIVE CONDENSERS**

MARLO • HEAT TRANSFER
Since 1905

MARLO COIL CO. / ST. LOUIS 10, MO.

compact

efficient

sturdy



**ORDER
THROUGH
YOUR
WHOLESALE**

THE New

MUELLER BRASS CO.

*Packless
line valve...*

**Overall height about 3 inches—
Port-in-line style.**

**Valve is fully opened with 1½
turns of the handwheel.**

**MUELLER
BRASS CO.**

PORT HURON, MICHIGAN

MANY GOOD FEATURES

Two extra large diameter diaphragms—one of phosphor bronze, one of stainless steel—service life well over 100,000 complete cycles.

Connections sufficient distance above the base to allow standard flare nut wrenches to clear when valves are fastened to the wall.

Valve is non-directional—indicational arrow forged on valve merely indicates the preferred direction of flow.

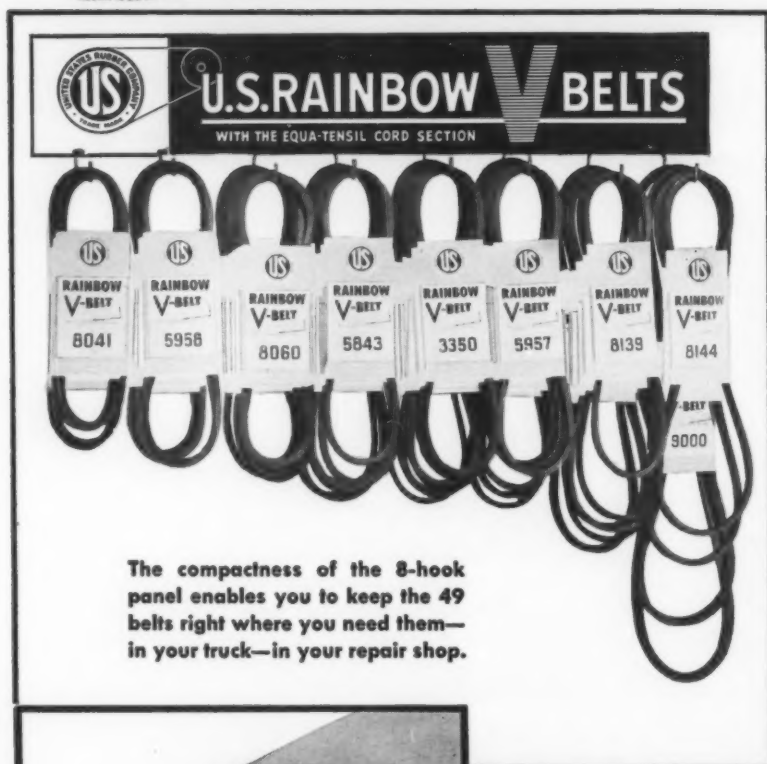
The valve has no springs, the opening being effected by operating wheel and operating screw.

The seat disc is made of molded nylon—a material resistant to the action of all standard refrigerants. The insert, although strong enough to resist flow under sustained pressure, is soft enough to conform to any irregularity of the seat.

A resilient gasket is provided at the back seat, not only to form a seal when the valve is in full open position, but also to form a cushion which prevents seizing, even if back-seated with considerable force.

The pressure-retaining members—body and diaphragm—have ample safety factors for use with any of the commonly used refrigerants.

THE 49 V-BELTS IN GREATEST DEMAND



The compactness of the 8-hook panel enables you to keep the 49 belts right where you need them—in your truck—in your repair shop.



Top Rubber Cushion in closely-engineered balance with the lower section . . . to keep cool under constant stretch and turn.

Equa-Tensil Cord Section—all cords scientifically placed, each pulling its share of the load.

A sturdy level cushion for the Equa-Tensil Cord Section. Provides structural firmness for V-grooves and over the flat pulley of V-to-flat drives.

—in a Portable Assortment

Here in one convenient group are all the belts that can handle the majority of emergencies in the Refrigeration field.

These 49 Belts cover service on hundreds of domestic and commercial refrigeration units, ice cream machines, frozen-food plants, air-conditioning systems and other allied equipment. With this compact stock you can be ready with the exact belt needed.

Each belt has that unique U. S. Rubber development which provides greater pull and endurance—the Equa-Tensil Cord Section.

Order from your Jobber, or, for more information write Mechanical Goods Division, United States Rubber Company, 1230 Avenue of the Americas, New York 20, N. Y.

PRODUCTS OF

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SERVING THROUGH SCIENCE

UNITED STATES
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QUALITY!



If we delivered them in a jewel case like this, NIBCO WROT Fittings couldn't be finer

for their purpose. They really are gems when you want a job to be proud of—they form perfect solder joints, leakproof, stronger than the tube! They're accurately formed to close tolerances under hydraulic pressures, by a patented process. NIBCO's uniform quality assures long life, trouble-free service—protects your profits and builds more business.

NIBCO WROT Fittings come to you conveniently packaged and marked for quick, easy identification, in time-saving cloth sacks. Available in a wide range of sizes and types. It will pay you to standardize on NIBCO WROT Fittings for refrigeration and air conditioning jobs. Write now for Catalog.

NORTHERN INDIANA BRASS CO., 1114 Plum St., Elkhart, Ind.

Quality Valves and Fittings Since 1904

NIBCO

WROT FITTINGS

Behind the Scenes at SAKS

Wagner Quality Motors help Build Patronage...

Operators of fashionable shops are quick to realize how well the installation of an air conditioning system can build patronage for their establishment. At Sak's 5th Avenue, in Beverly Hills, customers relax and shop in cool comfort—thanks to the efficient air conditioning system pictured above.

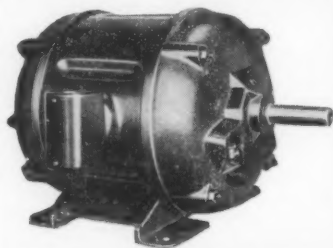
Air conditioning engineers specified, and used, Wagner Motors in this installation... as in thousands of industrial, commercial and home applications... because of their unfailing dependability! Dependable continuity of operation, outstanding service and economy are qualities found in every

Wagner Motor. That's why you see Wagner Quality Motors on the job everywhere, driving all types of apparatus that help people live in year 'round comfort.

Hundreds of equipment manufacturers have standardized on these outstanding motors. Wagner can help you, too. If you manufacture or use motor-driven equipment, it will pay you to investigate Wagner Motors. Quick, convenient, nationwide service facilities are available to users of Wagner Motors. Twenty-nine branch offices, located in principal cities, are ready to give you service and advice. Contact our

nearest office, or write us for bulletins on the complete line.

Wagner Electric Corporation
6442 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.



The motor illustrated above is typical of the Wagner complete line of polyphase and single-phase motors.



Consult Wagner Engineers on all Electric Motor Problems



• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE PRODUCTS •

THE REFRIGERATION INDUSTRY



4 things to consider...

IN SELECTING THE BEST
**AIR CONDITIONING and
COMMERCIAL REFRIGERATION
LINES TO HANDLE**

1 REPUTATION AND ACCEPTANCE

How long have the lines been known in the field? What kind of reputation have they established?

1

Hundreds of Lipman refrigeration and GR air conditioning units installed 25 years ago and longer, are still in regular service today — still running efficiently, building a reputation for dependability.



2 DESIGN AND MANUFACTURE

Are machines well engineered? Built to last, give real honest service?

2

Lipman and GR units are heavy duty, rugged — perform well, stand up in service, are better built for lasting satisfaction.

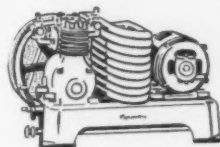


3 COMPLETENESS OF LINES

Are the lines skimpy — or are they complete, putting you in an excellent competitive position?

3

Lipman machines are available in $\frac{1}{4}$ through 40 hp. capacities — air and water cooled — with ammonia, freon-12 and methyl chloride refrigerants. The GR line includes range of self-contained and remote units.

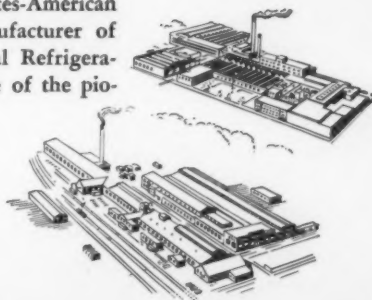


4 COMPANY BEHIND THE PRODUCTS

Will the units become "orphans" or is the company well-established — and known for fair dealings?

4

For more than 65 years Yates-American has been a time-tested manufacturer of quality products, the General Refrigeration Division since 1917 one of the pioneers in commercial refrigeration and air conditioning — "a good company to deal with."



MORE REASONS FOR HANDLING LIPMAN AND GR LINES: Prompt delivery now possible on most units . . . sales helps consisting of advertising to consumer markets — attractive sales literature — local ads you can run to fit your needs — engineering service to help you . . . *real cooperation, right down the line!*

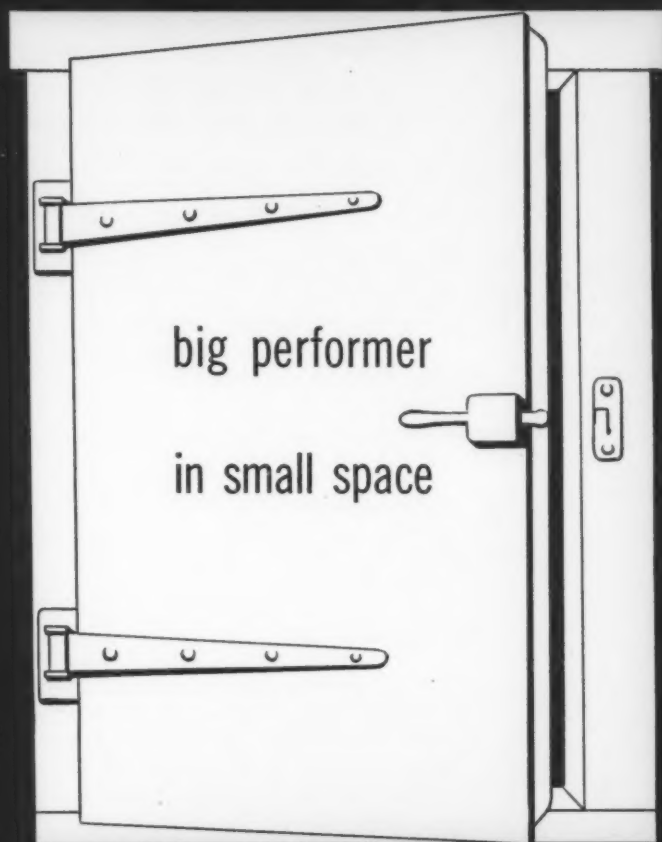
For complete information on Lipman and GR lines, advantages in handling them, market potentials — call, wire or write Dept. R10 today.

GENERAL REFRIGERATION DIVISION



YATES-AMERICAN MACHINE CO.
Beloit, Wisconsin





The cold diffuser that's best for relatively small space is one that gives plenty of refrigeration to handle peak loads. It delivers this big volume at low cost. And you want a compact unit that chills or freezes as need arises. That describes the Carrier ceiling-suspended Blast Freezer.

Here's an efficient, time-proved unit with ample capacity for fast, economical freezing of meats, vegetables, fruits and other products, for medium-

temperature chilling or storage of dairy products, flowers, furs. As a freezing unit, it provides positive, directional air circulation that eliminates dead spots and pockets in the freezing space, and speeds up freezing time.

Units are available in four different capacities. All have adjustable louvers to control direction of air flow. Cooling coil, fan motor and drip pan are integrally housed in rugged, compact

steel case, with slotted channel clips for easy suspension. Finished in Bond-erized gray enamel for long life. Water defrosting is available for installations where below-freezing temperatures must be maintained.

Carrier gives you engineering skill perfected through years of experience with refrigeration problems all over the world. It is these extra values that make Carrier your best investment. Carrier Corporation, Syracuse, N. Y.

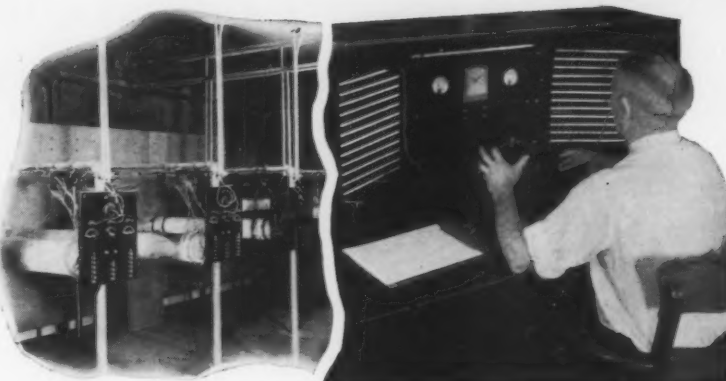


AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

**Facts about
J-M Insulations
Subject: RESEARCH**

They measure heat to save millions for industry

ACCURATE HEAT FLOW MEASUREMENTS are being made by this man to test the thermal conductivity of pipe insulation. He can make readings within $\frac{1}{3}$ of 1 degree F. at 800 different points on this apparatus in the Johns-Manville Research Laboratory—the largest, best equipped and most modern thermal testing laboratory in the world.



● The men pictured here, research workers in the Johns-Manville Insulation Laboratory, are experts at saving money. Through the development of insulating materials that control heat and cold, they save industry many millions of dollars each year.

Controlling temperatures at the lower end of the scale is an important part of this insulation research at J-M. One of the insulating materials that has helped make possible the better, more efficient refrigeration of today is Johns-Manville Rock Cork.

Basically mineral in composition, Rock Cork is

widely used in cold room service because it maintains its original low conductivity indefinitely. In addition, it will not absorb odors, cannot rot, and is resistant to termites and vermin.

Rock Cork is applied by a nationwide network of J-M Insulation Application Units, whose men are trained in Johns-Manville methods. The way to save the most money on your next insulation job is to make sure you get this combination of J-M materials and J-M methods. Write for Rock Cork brochure DS-555, Johns-Manville, Box 290, New York 16, N. Y.



THIS "HEAT-EYE" UNIT was developed in the Johns-Manville Laboratory to measure the thermal reflectivity of various insulating materials.



MAN-MADE WEATHER in this machine tests the ability of insulation jackets and casings to withstand exposure to sunshine, rain and freezing temperatures.

Johns-Manville

ROCK CORK INSULATION

Artkraft

HITCH YOUR FUTURE TO THESE STARS!

INVESTIGATE OUR STARTLING NEW

KEY DEALER PLAN on the

*Artkraft** **BEV-LINE**

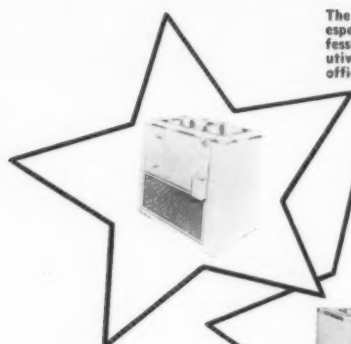
OF SPECIALTY REFRIGERATION PRODUCTS

BEV-ETTE

The personal refrigerator designed especially for executive and professional offices. Finished in executive brown to blend with any office.

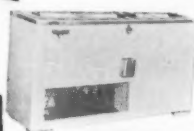
FARM GIANT

Utility food refrigerator, produce holder and milk cooler. 16 cu. ft. Cools 20 gal. milk. Moist cold refrigeration.



BEV-COOL

A bottle cooler that can be operated wet or dry.



BEV-GIANT

A mammoth bottle cooler that can be operated wet or dry.



BEV-FOOD

The only combination beverage and food cooler—can be operated wet or dry.

***** *Artkraft** is producing this fine line of SPECIALTY REFRIGERATION at "MOST CUBIC FEET PER DOLLAR" low prices, backed by an aggressive national advertising campaign in over 20 magazines, to net you BIG PROFITS!

Go to the TOP with this AaA1 rated, 27 year old organization—in the SPECIALTY REFRIGERATION FIELD!
Send coupon today for full details on our KEY DEALER PLAN.

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Good regional men write today for details on remaining open territory.

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MANUFACTURING CORPORATION

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() ☐ Please send full details on Artkraft® Key Dealer Plan.

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Firm.....
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**SIGNS
OF
LONG
LIFE**



QUALITY PRODUCTS FOR OVER A QUARTER CENTURY

*Trademark Reg. U.S. Pat. Off.

America's Quality Line of Commercial Refrigerator Hardware



Finest for NEW EQUIPMENT

Yes, this hardware is good to look at. But beneath the surface is that priceless ingredient, engineering integrity. Plus our exclusive "Living Action" locking principle—imitated but never equalled—action that means a

leak-proof cabinet always. That's why leading manufacturers entrust their good names to the performance of hardware by Grand Rapids Brass. May we send you a catalog—or a factory representative?

Best for REPLACEMENT

On service jobs, it pays to check the hardware! It pays—in profits to the service man, in better performance and operating economy for the owner. Stop those leaks—assure a positive seal—with "Living Action" locks

and handsome new hinges by Grand Rapids Brass. Ask your supply jobber—or write direct—for our new installation manual, with complete instructions and detail drawings.

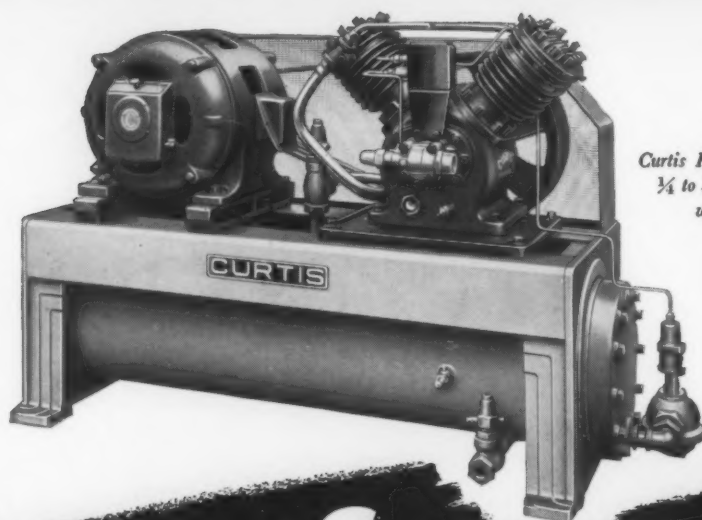


HINGES FOR LIFETIME OPERATION

Little details add up to a big margin of superiority. Self-lubricating Oilite bushings—stainless steel pins—reinforcing ribs to take the shock of daily abuse . . . these help explain why hinges by Grand Rapids Brass are preferred for original equipment and replacement.

Grand Rapids Brass Company
Division of CRAMPTON MANUFACTURING COMPANY
Grand Rapids 4, Michigan

Built for High Efficiency • Low-cost Operation



*Curtis Refrigeration Units,
1/4 to 30 H.P., air and
water cooled.*

CURTIS

COMMERCIAL REFRIGERATION AND AIR CONDITIONING EQUIPMENT

Whatever the application in commercial refrigeration or air conditioning, the Curtis nameplate is your assurance of top quality construction, sound, proven engineering principles and low maintenance and operating expense. Just a few of the many features include:

- Timken Bearings
- A wide range of types and sizes
- Extra large condensers
- Positive-pressure lubrication
- Quiet operation
- Slow speeds — long life

Write for full information on the Curtis line of equipment for practically any refrigeration or air conditioning requirement.



*Curtis Self-Contained Air
Conditioners—3, 5, 7½,
10 and 15 tons.*

CURTIS REFRIGERATING MACHINE DIVISION

*94 Years of
Precision Manufacturing*

of Curtis Manufacturing Company

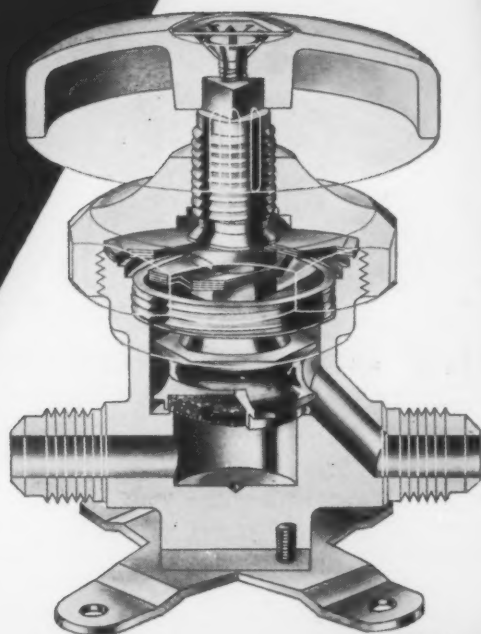
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THE MARK OF QUALITY



Accepted by the Industry

Knowing that Weatherhead Packless Valves are chosen consistently by manufacturers, wholesalers and service engineers for rugged service, is your assurance of long, dependable performance, and resulting customer satisfaction.



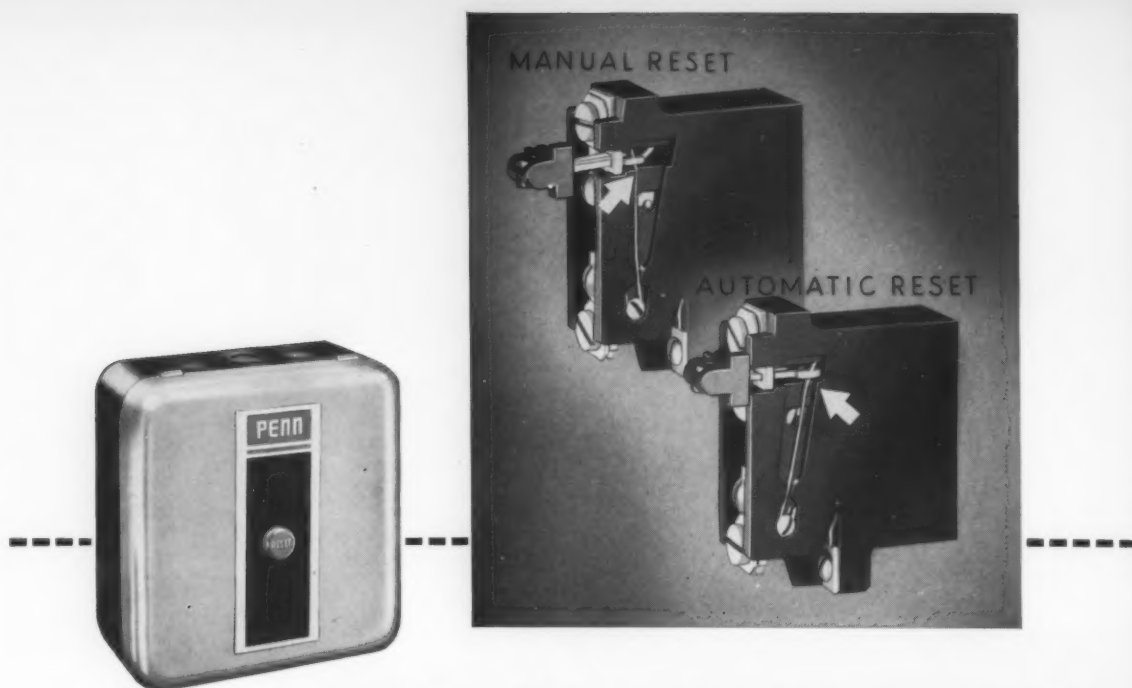
SAFETY ASSURED THROUGH WEATHERHEAD LABORATORY PRODUCT CONTROL

Look Ahead with

THE Weatherhead CO.

CLEVELAND 8, OHIO

PLANTS AT CLEVELAND, OHIO • ANGOLA, INDIANA • COLUMBIA CITY, INDIANA
HOUMA, LOUISIANA • ST. THOMAS, ONTARIO, CANADA



A SIMPLE CHANGE OF SPRING POSITION GIVES

Automatic or Manual **RESET**

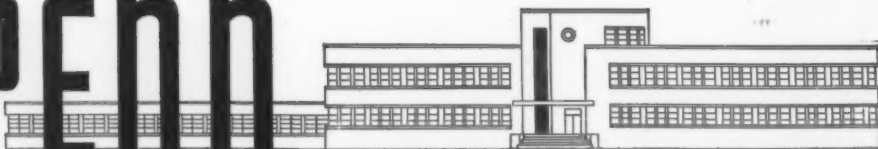
IN PENN MAGNETIC MOTOR STARTERS

A simple change in the spring position is all that's necessary to convert the new Penn Motor Starter from manual to automatic reset. In commercial refrigeration it is sometimes desirable for overload relays to reset automatically after temporary overload condition has corrected itself, and thus prevent possible spoilage of perishable goods.

Complete panels, incorporating motor starter or contactor with appropriate Penn Controls for

pressure, temperature and humidity regulation are now available from one source, with *undivided responsibility*. Penn motor starters or contactors are also available with Type 1 enclosures. Built in sizes 0, 1, and 1-1/2. Ask your wholesaler, or write now for Bulletin 2705-A containing detailed information. **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Penn Controls Ltd., Toronto, Ontario.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

THE REFRIGERATION INDUSTRY

COLD WAR, HOT WAR OR NO WAR?



A FEW weeks ago I had the rare opportunity of spending almost a month with the Mediterranean Fleet as a guest of the Navy. You may imagine that it was a thrill and a most unusual experience.

Among many outstanding things evident on a trip of that kind, I think the most outstanding is the interdependence of naval operations and American industry. Just because there is no active war being waged, just because factories are not bulging with war orders, it does not mean that the Navy does not need industry nor that industry does not need the Navy.

Because of generations of isolationist thinking, we Americans have a hard time getting used to the idea that our frontiers are in the Mediterranean, or in the Far East, or in South America. Global thinking does not come natural to us yet, but we are gradually getting accustomed to the idea.

Global frontiers mean global protective forces. Global protective forces—the Army, Navy and Air Force—require new concepts in supply techniques, in maintenance methods, in food preservation methods.

Because of political considerations, no foreign country may grant us bases for the repair, maintenance or supply of our ships. The best they can do is to let us use some of their harbors a few days at a time. This means, then, that when one of our supply ships starts to transfer supplies it must do it with an absolute minimum of confusion and mistakes. Important supplies must be delivered to the right place at the right time, and inasmuch as the Fleet is not a static force but, rather, one which moves around from harbor to harbor, this is not always easy.

Inasmuch as our organization publishes magazines in a number of industries, my interest in the operation of the Sixth Task Fleet extended beyond supply and material handling problems, although those are probably the biggest.

The intricate job of supply must be done with the greatest possible dispatch. The job of supplying an entire fleet like the Sixth Task Force (as the Mediterranean Fleet is officially called) from supply ships is one which calls for the most advanced material handling methods. The thousand-and-one things

required by a fleet must be kept in ample supply at all times. These are matters which have engaged the attention of readers of our magazine, **FLOW**.

As publisher of **INDUSTRY** and **WELDING**, I was much interested in the maintenance operations aboard every ship. Fleet operations, with all the practice exercises and regular sea duties, are wearing on every ship in the force. Without the liberal use of welding, it would be much more difficult, if not impossible, to keep combat vessels at sea for months at a time, unless there was a continuing repair program. And, of course, welding lends itself perfectly to these requirements because it is the perfect maintenance tool.

Because we publish **THE REFRIGERATION INDUSTRY**, my interest in food preservation was particularly active. The food aboard ship is excellent, qualitatively and quantitatively. Shore establishments cannot hope to supply the vast quantities of food required for a Fleet operation so, again, the supply ship does its stuff. But there is the additional problem of preservation. Again, without refrigeration the operation of the Sixth Task Fleet would be impossible.

The modern combat vessel is one of the most intricate pieces of machinery man has ever conceived. In it are used the latest developments in electronics, hydraulics and pneumatics, subjects of our magazine **APPLIED HYDRAULICS**. It is a veritable nest of servomechanisms operating everything from the Number 1 gun turret in the forepart of the ship to the rudder mechanism in the stern. Much of our present day development in hydraulics has come from naval vessels and industry is indebted to the Navy for the experimental work which has been carried out in our Arsenal in this whole field.

Wherever there is a naval vessel there are hundreds of navy men living and working together in comparatively cramped quarters. Inasmuch as a naval vessel is in itself a small factory, the men are subject to all the accident and industrial health exposures of any worker in industry. Whether to protect the men from the excessive use of paint in confined quarters, or from using the lathe in the ship's machine shop, there must be the same industrial safety precautions taken that are found in the most modern plant. As publisher of **OCCUPATIONAL HAZARDS**, that interested me.

Thus, every industry must contribute to keep our ships at sea, our planes in the air, and our troops in foreign trouble-spots. There can be no letup now or in the foreseeable future because it does not look as though there will be any letup in the cold war. I do not believe there will be a hot war.

The greatest reason, in my view, for believing that there will be no war is the fact that we are better prepared for war than we have ever been before in peace time. This fact is the best insurance against war. Traditionally and historically America will not seek war. If we are ready, no other nation will dare to provoke us.

Thus, industry, the secondary defense line of our armed forces, must play a signal and important part in keeping us out of war. Industry must so integrate itself into the needs of our highly technical defense arms that there will be no active war. Industry must help to wage this constant war of preparedness which may cost dollars but will not cost lives nor bring the death of our cherished democratic institutions.

Irving B. Hexter



Gossett and Dahlinger (seated) look over the plans for an air conditioning job which they are installing, as Fred Gossett, a nephew of the boss, stands by.

Here is the unusual story of a depression-born business which somehow managed to virtually double its dollar volume with each passing year—even when the going was tough

Double or Nothing

A REMARKABLY simple "success story" is that of the M. P. Gossett Co., refrigeration and air conditioning dealer of Nashville, Tenn.

Unlike many dealers who have found "tough sledding" all the way, this concern has been progressively successful ever since its founding day in 1939. In fact, it virtually doubled its sales volume each year during its first few years of operation, and continued to grow until the firm's dollar volume for its ninth year was more than 12 times that of its first year.

M. P. Gossett, head of the firm, has been in the commercial refrigeration and air conditioning business since he was 15 years old. Prior to founding his own firm, he was a refrigeration engineer for another Nashville company. Vice-president Frank Dahlinger, Jr., who has designed many of the large-scale air conditioning and refrigeration installations now functioning in Nashville, studied refrigeration engineering at Vanderbilt University, started to work for Gossett at his former location, and then "stayed with the boss" when Gossett launched his own concern.

Both men were "local boys" and had a firm foundation in wide acquaintanceship and knowledge of Nashville's peculiar high humidity, high heat load conditions.

The Gossett company started out in a 20x40 foot building several

This 20 x 40-foot space next door to a neighborhood barber shop was where the Gossett firm commenced its operations in 1939.



A far cry from its humble beginnings is this modern new building which now houses the company's expanded operations.



Commercial refrigeration equipment and packaged air conditioning units vie for attention on the well lighted and air conditioned sales floor. Bright blue walls set off the gleaming white units to good effect.

blocks away from the present 3-story, \$110,000 building which was completed during the middle of 1947.

"We began with one truck, two servicemen, two shopmen and a bookkeeper," Gossett relates. "For a market, we had a large, busy city, which was woefully behind the rest of the nation from a refrigeration and air conditioning standpoint.

"Since I had been handling Carrier installations since 1934, I was able to buy the franchise in 1939, and go ahead on my own. We found our best sales field lay in going directly to various business establishments, studying their need for refrigeration and air conditioning, and urging them to take advantage of the low prices which existed, during those depression years."

Sales for the Gossett company's first year amounted to \$65,000, split equally between refrigeration and air conditioning, and including such "prestige" jobs as Nashville's first completely air conditioned cafeteria.

In 1940 the firm's volume jumped to \$120,000. In 1941 it doubled again to reach \$240,000. Since that time it has climbed steadily to \$800,000 in 1947. The partners have their sights set on a million dollar volume for 1948, and are well on the way to this goal, according to Gossett.

Although only in business under its present name since 1939, the company

can honestly advertise that its principals have been engaged in heavy-duty air conditioning "longer than anyone else in the South".

"We made a survey 5 or 6 years ago," Gossett reports, "and found that we had installed more air conditioning than all of the other firms put together. We made the survey in the interest of one of our manufacturers and surprised ourselves to find that this was true."

Operating in a small way through its early years, the Gossett company showed an excellent profit, despite general depression conditions. Surprisingly, most of the installations were sold for cash, with none of the "quarter-meter merchandising" which was characteristic elsewhere in the country.

At the end of the first year, sales had grown enough so that Gossett felt justified in adding to his personnel. He hired a draftsman and some extra shop mechanics, and expanded his territory to a 100-mile radius around the Tennessee capitol.

"Our background helped a lot, as did the fact that I already had a following," Gossett explains, "Some of our early jobs, running 40, 50, and 60 tons in capacity, received such heavy traffic from customers during the summer months that it was easy to point out to prospects that air conditioning or refrigeration could pay for itself quickly in extra business. We ran publicity pictures of some of our installations in our advertising and got an excellent reaction."

The first real physical expansion took place in 1941, when Gossett built a building at another location.

"This was built on a rather unusual basis," he recalls smilingly. "I expected to be drafted into military service at any moment, and built the building merely as a place to store all of my equipment, parts, and other paraphernalia, until I returned home."

As it turned out, however, Gossett's refrigeration experience won him a lot of contracts with the Smyrna army air field, and a local boat-building plant, so he was deferred.

Continued on page 65



The company's industrial department provides for "over the counter" sales of such items as Allen-Bradley controls, Fairbanks Morse motors, and Louis Allis equipment.



A total of 1500 tons of refrigeration equipment were installed in Cincinnati's new Terrace Plaza hotel and stores building.

THE LAST WORD *in hotel cooling*

One of the world's newest hotels goes modern all the way by providing complete year-round air conditioning from sub-basement to penthouse, plus 45 different refrigerated spaces for the storage of foods and beverages. Here's how it was done

COMplete control of indoor weather the year around, from sub-basement to glass penthouse, is featured in the newly-completed 19-story Terrace Plaza Hotel Building in Cincinnati, Ohio.

This ultra-modern structure, which combines a 12-story hotel built atop a 7-story building which houses a number of stores, is air conditioned by a central source system designed and installed by Carrier Corp.

The stores building is windowless and of unbroken brick above the ground floor. The architects figured that windows would serve no real purpose since the light received would be negligible for store purposes, and that money could be saved through the use of modern air conditioning and improved lighting techniques.

In contrast, the hotel unit makes a maximum use of glass, with sealed 10-foot "picture" windows in each of the 400 guest rooms, supplemented by small casement sections at each end. On the eighth floor, public areas use almost continuous glass.

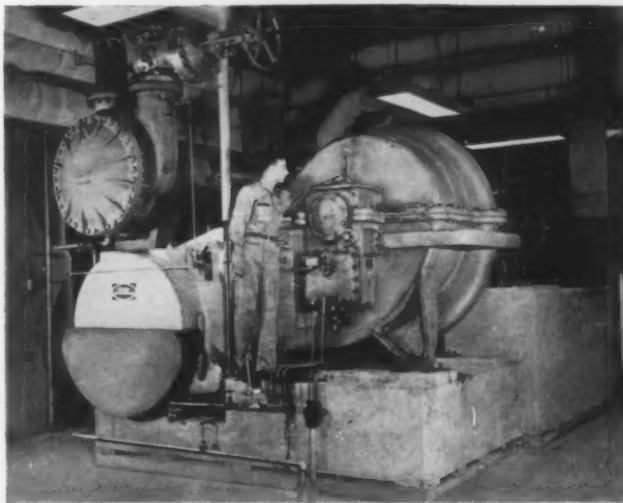
The guest rooms are served by 440 Carrier conduit "Weathermaster" units built into spaces beneath the windows. Each guest can regulate his

Continued on page 51

Size of this huge Carrier centrifugal refrigeration machine, one of three such units installed in the Terrace Plaza, can be judged by comparison with the serviceman who is checking this huge compressor.



At a mere turn of the control knob (indicated by arrow) of the Carrier "Weathermaker" unit installed beneath the window ledge, each guest can change the temperature and humidity in his hotel room to suit himself.



THE *Marvair* HEAT PUMP

A report on the heat pump system being produced by Muncie Gear Works, Inc., Muncie, Ind.

PRODUCTION STATUS—

Four models now in production in plant set up to manufacture five units a day.

AVAILABILITY—

Through distributor and dealer organization in 26 states.

HEAT SOURCE—

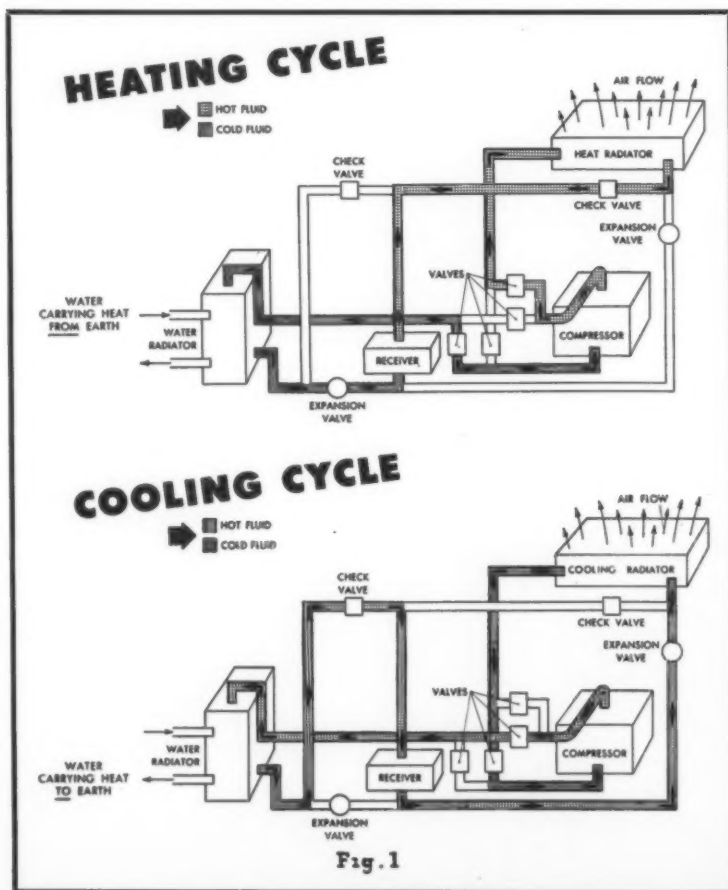
Water pumped directly from the ground and wasted, or from a closed-tube circuit inserted in a deep well.

PRICE RANGE—

From approximately \$1750 up, installed, depending upon model and installation requirements. Averages approximately \$600 per ton of cooling capacity.

By Marvin Smith

Vice President
Muncie Gear Works, Inc.



THERE are several makers of heat pumps, but the Muncie Gear Works of Muncie, Ind. is one of the pioneers of this product and probably has more units in the field than all other producers combined, with installations operating in thirty-two states and in Canada. The trade name of its product is "Marvair," and this discussion will be based on this product and the findings thereon.

Let me state here that the development of a new product that is the start of a new industry is not a simple matter. It requires months and years of engineering research, trial and error, and actual field operation before a product is developed that the trade can accept with confidence.

Figure 1 shows the component parts of a Marvair system and traces the refrigerant cycle on both heating and cooling phases.

The compressor in Figure 1 takes the refrigerant vapor from the evaporator through the suction line. This vapor is at a relatively low pressure and temperature. The vapor is then compressed and pumped to the condenser through the compressor discharge line.

The pressure to which the vapor is compressed will depend on the temperature conditions encountered in the condenser. The pressure which the compressor must maintain depends upon the air temperature leaving the condenser and on the relative extent

and design of the condenser as a heat exchanger or heater.

In order to get heat to flow from the condenser to the air it is necessary to maintain a temperature difference between the refrigerant in the condenser and the air. The amount of temperature difference which must be maintained will depend upon the amount of air to be heated, the overall heat transfer coefficient, the square feet of heat exchanger or condenser surface and the effective or mean temperature difference.

The temperature of the refrigerant in the condenser must, therefore, be higher than the air temperature leaving the condenser. The amount will depend on the economics and practical requirements of a given situation.

For a given system the pressure which the compressor must supply will be approximately that corresponding to the saturation pressure of the refrigerant at the temperature of the refrigerant in the condenser discharge. The discharge pressure will have to be sufficiently above this to overcome the pressure drop.

Vapor Is Superheated

The vapor leaving the compressor will in most cases be superheated, the amount depending on the amount of cooling supplied the compressor and the heat loss in the lines.

When the compressed vapor is received in the condenser it is immediately cooled to the saturation temperature corresponding to the pressure in the condenser. As the air passes over the condenser it abstracts heat because of the difference of temperature which exists.

Since the vapor temperature is controlled by the pressure, condensation of the vapor takes place to furnish the heat abstracted by the air. This condensed vapor or condensate passes through the condenser to the receiver which is a storage tank for refrigerant necessary to maintain satisfactory operating conditions.

The vapor then passes through an expansion valve which reduces the pressure on the refrigerant from that in the condenser to that in the evaporator. As the pressure is decreased the boiling of the refrigerant decreases and some of the liquid refrigerant flashes into vapor. The remainder remains as liquid until it gets into the evaporator.



Fig. 2—A 5-hp Marvair heat pump, complete with electronic air filter, installed in a home in Chattanooga, Tenn.

When water is passed over the evaporator its temperature is above that of the refrigerant in the evaporator and, therefore, heat will flow from the water to the evaporator. This heat will cause the refrigerant to evaporate.

The temperatures which must be maintained in the evaporator to maintain operation will again depend on the size and design of the evaporator as a heat exchanger surface. The factors involved are the same as those mentioned under condensers.

The vapor is taken off the condenser to the compressor through the suction line and the cycle is completed. The pressure of the refrigerant in the evaporator will depend on the refrigerant used, and on the temperature which must be maintained in the evaporator to get the required heat flow to the evaporator and to the condenser.

This procedure may seem complicated, but actually it is a simple refrigeration system such as is used in commercial water coolers.

The reason for installing a water cooler is that the water is too warm to be palatable. To correct this the warm water is run over the cold coil of the evaporator of the commercial cooler, thus extracting heat from the water, and the water is delivered to the drinking spigot at a much cooler temperature.

Out of the condenser of the refrig-

eration system which has absorbed the heat from the water is blown heated air, this air getting the heat from the condenser, and is the heat that was picked up by the refrigerant when the drinking water was cooled. This heat is normally wasted out into the room and if we were to turn this drinking fountain over and connect a plenum chamber and duct work we would have exactly the same general principle as we have in extracting the heat from water in an operating heat pump.

Cycle Is Reversed

As is indicated in Figure 1, when the heat pump is used for cooling the refrigerant is reversed through the use of valves, and the air radiator which is the condenser on the heating cycle becomes the evaporator on the cooling cycle. The water radiator which is the evaporator on heating becomes the condenser on cooling.

Most of the work and research done on heat pumps has been in the electrically driven units. There are certainly many advantages in utilizing electricity as the source of driving energy because of its availability, cleanliness, reliability, etc.

However, there are some problems which have yet to be overcome.

First of all, the home in which a

Continued on page 46

CONTRACTORS

News • Activities • Plans

While *The Refrigeration Industry* is not the official publication of the National Association of Refrigeration Contractors, the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

Panel Discussions Feature NARC Convention Program

Closely keyed to the convention's "Know How—Show How" theme, a series of panel discussions in which competent speakers from various segments of the refrigeration and air conditioning industry will present their personal views on a wide variety of pertinent subjects will feature the third annual conclave of the National Association of Refrigeration Contractors Nov. 18 and 19 in Chicago's Sherman hotel.

This method of presentation has been selected by the association's program committee, under the direction of Al Weil of Refrigeration Maintenance Corp., Chicago, as the best means of packing the maximum amount of constructive and instructive information into the two-day sessions.

Every effort will be made to keep the meetings entertaining as well as educational, and the number of traditional "canned" speeches will be pared to a minimum. All discussion periods will be followed by an open forum session for the handling of any questions from the contractors attending.

Some of the subjects slated for discussion are guarantees, licensing, service control methods, service sales methods, and equipment methods. These will embody such sub-topics as labor cost control, parts inventory control, commercial refrigeration, packaged room air conditioners, air conditioning construction, and many others.

Present plans also call for addresses on such subjects as the finding, hiring, and training of salesmen; the effect of recent labor legislation on the refrigeration contractor; and the present and future business outlook for the industry.

The regular sessions of the convention, as well as the luncheon which is scheduled for Thursday, Nov. 18, will be open to all interested non-members of the organization, as well as to all NARC members and their wives. In fact, NARC extends a cordial invitation to all those engaged in the refrigeration industry to attend this convention in order to meet the men who form such an important link in the industry's chain of distribution and to listen to their problems.

A closed business session of the association will be held on Friday, Nov. 19, for the purpose of conducting such organizational business as the election of six new national di-

rectors and the consideration of two proposed amendments to the NARC constitution.

CLEVELAND CONTRACTORS NAME NEW OFFICERS

New officers and board members have been elected by the Refrigeration Contractors Association of Cleveland for the 1948-49 season.

President of the Cleveland group for the coming year is Ernie Farr. Other officers include: vice president, Lawrence Gardella; secretary, Harold Sheehan; treasurer, Ivan Whims; sergeant-at-arms, Roy McCloskey.

New directors of the Cleveland organization are: Sam Aub, Glenn Keller, Julius Colasent, and John Tyler.

GEORGE MURPHREE HEADS DETROIT CONTRACTORS

George C. Murphree, president of Refrigeration Maintenance Corp., has been elected president of the Refrigeration Contractors Association of Detroit for the coming year.

George F. Lynch, vice president of Economy Refrigeration & Air Conditioning, Inc., has been elected vice president of the local group, and Frederick R. Bolton remains as executive secretary and counsel.

Directors for the term expiring in
Continued on page 69

TRACTOR PINCH HITS FOR 10-HP MOTOR

This Farmall tractor proved to be a satisfactory substitute for the 10-hp single phase motor which previously powered the 10-hp Brunner condensing unit on the dairy farm of Mesrs. Newman and Cobb at Gulfport, Miss. The dairymen had been waiting for years for 3-phase current from REA, and had their 3-phase motor already to install when the line was completed. Five days prior to this, however, the refrigeration system broke down, and it was only the refrigeration "know how" of H. C. Ladner, (left) which saved the day for Cobb (right) and partner.

Photo and information from Enochs Sales Co., New Orleans, La.



MORE ADO ABOUT LICENSING

SHOULD refrigeration contractors be licensed? That is a question which is currently the subject of considerable debate within the refrigeration industry, with determined and emphatic arguments being advanced both for and against such procedure. In the firm conviction that the cause of the refrigeration industry as a whole, including those of its members who are arrayed on opposite sides of the fence in this issue, could best be served by fully airing the arguments both for and against licensing, we published in the August issue of *THE REFRIGERATION INDUSTRY* the widely divergent views of two industry associations, the Air Conditioning and Refrigerating Machinery Association and the National Association of Refrigeration Contractors. On this page we continue this pro and con discussion by publishing a criticism of licensing sent to us by a representative of a Cleveland refrigeration contracting firm and a rebuttal of these arguments prepared by a representative of NARC. We sincerely hope that the publishing of these conflicting opinions will serve to further clarify the issue under discussion.

—The Editors

To: THE REFRIGERATION INDUSTRY

From: Leonard F. Auerbach, Director of Sales, Cooling & Refrigeration Division, Temperature Equipment Corp., Cleveland, Ohio.

AFTER reading your August issue, I feel that I must add my views to the hubbub that is being raised over the question of whether or not Refrigeration Contractors should be licensed.

I feel it particularly important since I speak for the type of organization for which NARC supposedly speaks, but I hold a viewpoint directly opposite theirs—a viewpoint which I believe is shared by most people with previous experience in the organized building trades.

I believe that one of the most potentially dangerous things that can happen to the refrigeration industry is the licensing of its contractors. Admittedly, the medical profession is licensed, and the license gives us all confidence that a doctor has had proper supervised training and education.

In using this comparison, two important facts are ignored: The first is that the doctor's license is tied in with a certain number of years of specialized education from accredited schools; and secondly, that the person who has received the education and has received the license is the sole person operating under that license.

Such is not the case with the contractor.

Smith Refrigeration Company may be a licensed contractor because at the time of applying for their license they had a refrigerated professional engineer in their employ as well as competent service personnel. Smith Refrigeration will still have that license six months later even though they may no longer have a registered engineer and they have lost their service manager and their better service personnel.

Are they still as qualified as they were six months previously? The licensee says, "Yes." The facts say, "No."

The licensing invariably will lead to giving any type of company or individual the right to operate their business as "Licensed," as though it were a mandate from the city. It is a beautiful phrase for the inexperienced and shady operator to hide behind.

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To: THE REFRIGERATION INDUSTRY

From: James E. Perry, National Chairman, Licensing and Code Committee, National Association of Refrigeration Contractors.

IN reply to Leonard Auerbach's letter expressing his views on the licensing of refrigeration contractors, I, as chairman of the Licensing and Code Committee of the National Association of Refrigeration Contractors, should like to express wholehearted disagreement with several of his statements, the first of which is that he is holding a viewpoint directly opposite to that of NARC. Frankly, most of the statements that are contained in his letter have been taken from the NARC book.

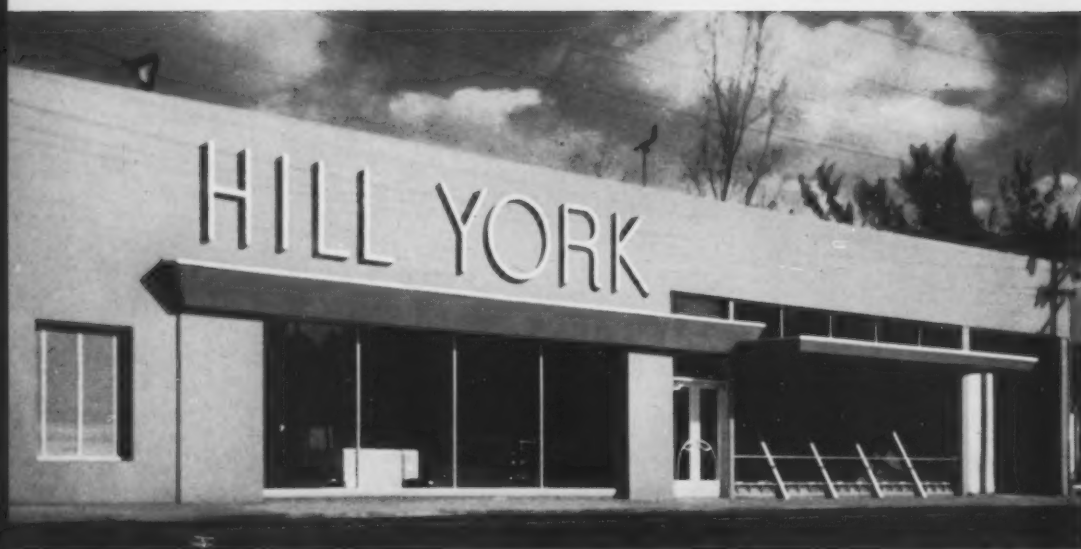
Many of the weaknesses of licensing as enumerated in his letter are weaknesses that are prevalent in poor licensing provisions and in most cases where this condition exists the responsibility rests with men in high positions in this industry shirking their duty, first to themselves, second to the industry, third to the general public.

Some time ago NARC, through its Board of Directors, sent out a plea to everyone vitally interested in this industry for help and advice on this difficult problem. We had little response and no cooperation. So, realizing that time was short and the problem growing, NARC, through its Board, went on record as advocating local licensing regulations, and set up machinery to render all possible assistance to any group applying for help.

The response has been very gratifying. This committee feels it has rendered a service to a number of communities throughout the nation. We have also received some condemnation from men such as Mr. Auerbach, who should have been in on the ground floor at the time that *all the Industry* was asked to help formulate a policy. This, however, is the usual procedure—you never hear the squeaks in a motor car when its standing still.

To help clarify the entire program up to now, the NARC has gone on record as recommending local licensing regulations where legally applicable. It also wholeheartedly recommends the adoption of the ASA-B9 Code as revised (and this has been in process since 1939). Certainly there can be no argument there.

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Showrooms can be swanky

You don't have to sacrifice utility to achieve beauty in a showroom for commercial refrigeration and air conditioning equipment. This new Florida building proves how strikingly attractive a truly functional design can be

COMBINING swanky appearance with functional utility in a showroom for commercial refrigeration and air conditioning equipment may sound like a rather large order, but it's an order that has been well filled at the new Miami, Fla., headquarters of Hill-York Co., refrigeration and air conditioning contracting firm.

Located in a city already studded with sparkling examples of modern architecture, the beautiful Hill-York building was designed by architect Robert Fitch Smith to embody the most advanced features of modern functional treatment.

R. E. Nitzsche and E. G. Carroll, who head the Hill-York organization, have long felt the wisdom of "getting out of the shop classification" and away from the usual dark, gloomy

showroom commonly associated with commercial refrigeration and air conditioning. Consequently, when they decided to erect a new building doubling the size of the previous Hill-York headquarters, they instructed architect Smith to "let himself go."

The resultant building has a 100 foot front of concrete block and poured concrete, finished in delicate pastel shades and trimmed in gleaming aluminum.

Most striking features of the building's exterior are the stainless steel marquee, and the five slanting windows which tilt sharply back at an angle of 50 degrees from the sidewalk's edge to a point on the showroom ceiling inside the store. In addition to catching a lot of attention from passersby, these display win-

dows eliminate reflections and make it possible to see the showroom interior no matter how bright the sun. On the opposite side of the building, four standard 10 x 8-foot window panes are used.

Every emphasis in the design of the new building has been on display efficiency, according to Harold Henderson, advertising manager of the firm.

Just inside the showroom entrance is a semi-surrealistic mural which "tells the story of refrigeration" in art form. The showroom interior, in which display cases, flake-ice machines, refrigerating compressors, air conditioning compressors, and even shell-and-tube units are shown, has pure-white plaster walls, terrazzo floor, and is comfortably air conditioned.

Striking simplicity is the keynote of the building's exterior. The slanted display windows provide maximum visibility by minimizing reflections and glare.

Building layout includes the showroom, first-floor executive offices, drafting and engineering offices on the second floor, and warehouse space, with lofts in the rear.

In each of the executive and engineering offices, steel files are built flush in the walls, as are waste receptacles, blueprint cabinets, and other items of standard office equipment.

Planning intensive direct-mail circularization of the entire south Florida market, Hill-York also has installed a completely equipped addressograph room for automatic addressing and mailing. This equipment can handle up to 100,000 pieces of direct mail per month.

Also on the upstairs mezzanine is a drafting room for four junior engineers being trained under Lucien R. St. Onge, the company's engineering supervisor.

Room for Salesmen

Next to the executive offices in the downstairs area is a territorial salesmen's room, complete with blackboards, individual desks and files for each salesman, and dictating equipment which permits each salesman to dictate reports, plan specifications, and similar information in a minimum of time.

Also on the first floor are the advertising office, executive offices of Nitzsche, Carroll, Robert S. Lafferty, vice president and director of sales, St. Onge, and Dudley M. Cawchon, sales manager. All offices are air conditioned and are paneled with a variety of blonde natural woods.

In the rear are double-sized storage rooms for meat cases, self-service refrigerators, flake-ice machines, and other unitary equipment. Ample storage space is also provided for air conditioning compressors, mixing chambers, and like equipment of any size, with overhead electric hoists handling the job of moving heavy equipment from place to place.

Along a hallway connecting the storage department with the executive offices are 12 "stand-up desks" of the slot-type, in which service mechanics make out their forms and receive instructions.



Plain white plaster walls and a terrazzo floor keep the interior of the showroom as dramatically effective as the building's exterior. Product displays are well spaced, in order to prevent a cluttered appearance. Note the soft, even illumination provided by the slanted display windows.

This neatly laid out, well lighted room, designed for use by the company's territorial salesmen, is located adjacent to the executive offices. Individual desks and files are provided for each man, and dictating equipment is available. The blackboards are for use during sales meetings.





A REFRIGERATION contractor can perhaps "get along" by just handling the routine business which comes his way, but if he is to grow and prosper he must *create* sales as well as merely *make* sales.

Jim Terry is a case in point. Jim is the founder and guiding light of Dresco Refrigeration Co., one of Detroit's largest and most progressive refrigeration and air conditioning contracting firms, and he estimates that at least 51% of his company's success is directly due to the effective type of creative selling which he employs.

Here is what Jim means by "creative selling". Not content with making an ordinary sale of an ordinary installation, Jim will locate, for instance, a restaurant owner or a tavern owner who is planning on installing some new refrigeration equipment, or possibly in building a new establishment. Then, through the medium of some expertly employed negative salesmanship, he will talk this prospect into completely modernizing his establishment, or building the fanciest one of its kind.

Jim Terry points proudly to the sign announcing his company's move to larger quarters.



CREATIVE SELLING

Through this process of convincing a customer that he should spend maybe \$100,000 instead of \$10,000, Jim builds up a lot of business for carpenters, plasterers, electricians, interior decorators, and construction contractors—but he always sees to it that Dresco comes out of the deal with a comfortably fat contract, too.

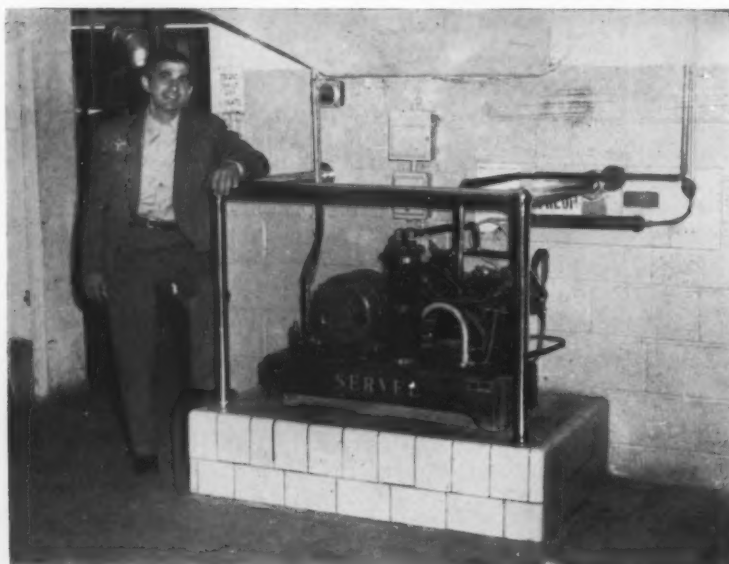
For example, there's the tavern owner who recently came to Dresco to arrange for the replacement of

some ailing refrigeration equipment which would have cost him around \$4,000 or \$5,000. Before Jim got through with him the man had completely remodeled and redecorated his place of business, including the installation of a year-around air conditioning system, and he had spent a total of \$60,000.

Of course about \$40,000 of that went to the general contractor, but Dresco came out with a contract for \$20,000 instead of \$6,000. And that, Jim Terry smiles, is the difference between a really successful refrigeration contractor and one who's just getting by. The \$6,000 sale might have buttered Dresco's bread, all right—but Jim likes his with jam, too!

Jim has built his unusual but effective sales technique—and Dresco's success—on the solid foundation of the observations which he made during nearly 20 years of working for other cooling contractors, manufacturers, dealers, and distributors in 46 of the 48 states, to say nothing of such foreign spots as Jamaica, Costa Rica, Panama, and Portugal.

During this extended stretch of



This condensing unit, mounted on a tile base and equipped with chromium plated guard rails, is typical of the deluxe sort of installations in which Jim Terry specializes. That's Jim, again, beside it.



This will be the new home of Dresco Refrigeration Co. It will give the firm 15,000 sq. ft. of floor space.

"Create a desire on the part of the prospect for modernizing his equipment and you create a profitable sale." That's the sound merchandising theory by which Jim Terry, Detroit cooling contractor, has made his business pay off

CREATES PROFITS

drifting from one job to another he had plenty of opportunity to see what other refrigeration contractors were, in his opinion, doing wrong. So, when he started his own business, he was determined to do it right. Dresco's present prominent position in the Detroit refrigeration picture is the best evidence of how well he has succeeded.

Jim really started out to be a lawyer. In fact, he was taking a pre-legal course at Northwestern University when the old ammonia machine

in his father's Chicago restaurant finally got the better of his natural mechanical inclinations and lured him away from a legal career. That was back in 1926.

He switched his studies to mechanical engineering, but he never did complete a course in refrigeration. It was just that he liked to work at refrigeration even better than he liked to study about it. And so he took to doing odd job service work around Chicago, studying in his spare time from an assortment of refrigeration

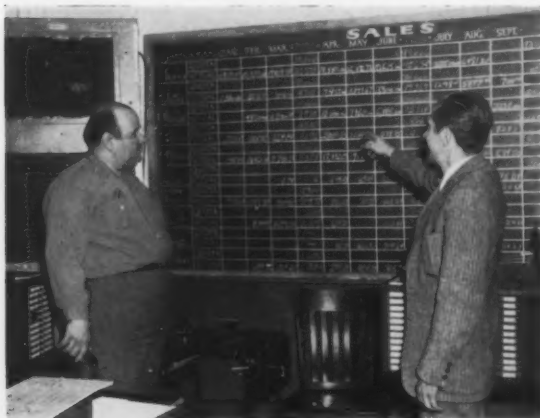
books which he had managed to acquire.

Jim was so eager to learn all he could about this new work that sometimes he would even offer to work for nothing if he thought that the man for whom he would be working knew more than he did. This period of practical education continued until 1933, when his urge to travel finally got the better of him.

That was the start of his career as an itinerant refrigeration mechanic, and from then until the pre-war draft went into effect he roamed the country from coast to coast and border to border working as apprentice, serviceman, service manager, salesman, sales manager, field consultant, and engineer for a wide variety of firms. The

Nick Nicholas, a Dresco sales executive, checks the quota chart with his boss. Jim, as the chart shows, is tops in sales.

Jim looks over the plans for a new job with James Kafkas, Dresco's treasurer. Kafkas handles purchasing and inventory.





list of cities in which he worked reads like a page from an atlas of the United States. San Francisco, Los Angeles, Yuma, Phoenix, Albuquerque, El Paso, Houston, New Orleans, Miami, Jacksonville, Washington, St. Louis, Boston, Providence—and these are but a few scattered examples.

When the draft regulations went into effect, however, he found his mobility hampered considerably, because of the necessity of keeping his draft board constantly informed of his whereabouts. Faced with this hindrance, plus the continued urgings of his family, Jim finally decided to settle down for a spell. But where? At his father's suggestion he finally decided on Detroit, where his only sister was then living.

Settles In Detroit

And so it was that in 1942 he arrived in Detroit, alone and without a single local contact in the refrigeration field, and set about to carve a place for himself in what was then, as now, a highly competitive business.

After looking around a bit, he decided to go into business for himself under the name of Resco, which was short for Refrigeration & Equipment Supply Co. He set up shop in a small place on Cass Ave. and then spent the next couple of years in what proved to be a tough but triumphant struggle to get his share of the city's refrigeration service business.

Makes Bold Bid

By 1944 Jim's business had progressed so well that it had attracted the attention not only of his competitors but also of his landlord. As a result, Jim awoke one morning to find the rent of his little business establishment practically doubled.

Partially in spite, but principally because he was now convinced that he held the key to a thriving business, he changed the company's name to Dresco (the "D" is for Detroit) and moved his headquarters to a much larger—and even more expensive—location on Woodward Ave., Detroit's principal business thoroughfare.

This was the move which convinced many of Jim's competitors that he finally had overreached himself. Some of them openly questioned his sanity, reasoning that the refriger-

Continued on page 60



Jim pours a drink for his charming wife, Carmen, as the Terrys enjoy the luxury of their richly decorated and well-equipped recreation room.

Jim finds welcome respite from the pressure of the business day in his hobby of gardening. Roses are his specialty. (He freely admits, however, that this picture was posed — he hires someone else to do most of the heavy work.)



Georgie, Jim Terry's son and heir, and Bozo, the family dachshund are great pals. Georgie is not quite four years old, but already he likes to "play with the motors."

REFRIGERATION INDUSTRY

News

MARSH BUYS WITT GAUGE DIVISION

Jas. P. Marsh Corp., Skokie, Ill., has announced the acquisition of the Witt Gauge Division of National Pressure Cooker Co., Eau Claire, Wis.

Purchase of the Witt line of gauges, which includes oxygen and welding gauges, will further broaden the large line of Marsh pressure, compound and vacuum gauges and is in keeping with the expansion program which the Marsh corporation recently inaugurated.

Identity of the Witt line will be preserved, but Witt gauges, including the oxygen and welding gauges, will be produced in the Marsh plant by the "Witt Gauge Division" of Jas. P. Marsh Corp.

RECORD COOLING BUSINESS SEEN

A record business volume of \$235,000,000 has been predicted for the air conditioning industry this year, according to a report in the New York Times.

Back orders for equipment and installation contracts indicate that the year's total volume will exceed record-breaking 1947 by at least 30%, the paper said. It noted that equipment sales and installation contracts hit an all-time peak in May and June.

Indicative of the growth of the industry are figures on the dollar value of equipment produced. The paper said that the total value of condensing units, compressors, centrifugal refrigerating machines, and self-contained air conditioning units produced in 1944 was \$33,927,000; in 1945, \$60,503,000; in 1946, \$94,919,000; and last year, \$167,598,000.

Self-contained unit production alone, according to the report, shows even more startling gains. In 1944 its volume was only \$3,686,000; by 1947 it had risen to \$34,995,000.

FRIGIDAIRE STARTS YEAR-AROUND TRAINING PLAN

One of the most extensive commercial refrigeration and air conditioning sales training programs in the company's history has been launched by Frigidaire Div., General Motors Corp., for its key sales personnel across the nation.

This new year-around training program will attract more than 1000 key field representatives and commercial dealers to Dayton during the coming winter. To get the ball rolling, more than 125 Frigidaire commercial sales managers and sales promotion managers from 44 districts in the United States, Canada, and Brazil attended an inaugural two-week sales training school.

A similar commercial school later was held for 75 district commercial sales representatives. The company's commercial refrigeration and air conditioning dealers are scheduled to undergo special training courses which will be conducted for groups of 70 men at a time.

BAKER EXPANDS FRISCO BRANCH

Baker Ice Machine Co., Inc., announces its expanded offices and location of its branch sales office at 445 Bryant St., San Francisco 7, Calif. This office is under the direction of Laurence K. Brink, who for many years was connected with Baker's Los Angeles district office.

For many years Baker has operated a large district office and plant staffed with sales, engineering, service, and erection personnel in Los Angeles. The enlarged San Francisco office is another step to cover adequately the State of California.

LA CROSSE NAMES RODEN AS AGENT

R. H. Roden Co., of Fort Worth, Tex., has been appointed sales representative for LaCrosse Cooler Co., manufacturer of commercial refrigeration equipment, in the states of Oklahoma, Arkansas, Texas, Louisiana, and Mississippi.

EDUCATIONAL AIMS HIGHLIGHT TRADE MEETING IN CHICAGO

Educational displays and educational sessions will combine to lend a highly learned atmosphere to the 3rd regional educational conference to be sponsored by the Refrigeration Equipment Wholesalers Association and the 11th annual meeting of the Refrigeration Service Engineers Society, which events will be held jointly Nov. 19-22 in Chicago's Hotel Sherman.

More than 100 exhibits by leading manufacturers of refrigeration equipment will be built around one of these four themes: how the product is manufactured; how it is installed; why it does a good job; how it should be serviced.

These educational exhibits are the result of several years of cooperation between the two trade groups, and their value has been previously demonstrated in the two similar conferences held earlier this year in San Francisco and Boston.

The RSES program also will lean heavily on the educational side, with a number of technical discussions and open forum sessions scheduled.

Fun will not be neglected entirely, however, for Saturday night, No. 20 will be devoted the RSES annual banquet and get-together. Good food, good music, and good fun are promised by the entertainment committee.

BOWSER SHOWS LOSS

Bowser, Inc., Terryville, Conn., has reported a net loss of \$491,646 for the first 6 months of the year as compared with a net profit of \$879,045, or \$1.21 a common share, for the same period last year. Net sales dropped from \$15,998,210 for the first half of 1947 to \$10,452,345 this year.

CANADIAN SALES EXECS GO TO SCHOOL



Frigidaire representatives from the 48 states, Canada, and South America attended an inaugural commercial refrigeration and air conditioning sales school at the company's headquarters in Dayton, Ohio, to start off the company's new year-around training program for field personnel. Shown here with Ellsworth Gilbert, sales promotional manager, is the Canadian delegation. Left to right they are: W. E. Brisbin, Canadian sales supervisor; Gilbert; William Garlick, Canadian sales promotion manager; and A. G. Crysdale, Canadian commercial sales manager.

ACME HOLDS THIRD SALES CONFERENCE



These executives of Acme Industries, Inc., led discussions for field men during the company's 3rd annual sales conference. Top row (left to right): Ward Swarthout, P. G. Williams, D. G. Merrill, G. D. Baldwin. Bottom row (left to right): Fritz Oertel, J. T. Maloney, G. L. Baldwin, E. B. Dunphy.

Third annual sales conference of Acme Industries, Inc., Jackson, Mich., manufacturer of heat exchange equipment was held last month. These conferences were begun in 1942, discontinued throughout the war years, and resumed last year.

A large percentage of Acme's representatives and field agents from all parts of the nation gathered in Jackson to view the new products and equipment and to study the new features that have been added.

The program was directed by Joseph T. Maloney, sales promotion manager, under the guidance of Kenneth A. Weatherwax, vice president and general manager. The meeting was devoted to the study of the features of Acme's equipment, sales policies and sales promotional activities.

E. B. Dunphy, director of engineering, led the discussion of problems encountered by the field agents. Dunphy covered the engineering phase of the discussion which was developed along the line of application, design, operation and service.

Other speakers were: Louis A. Gerber, secretary-treasurer, who spoke on credit and collections; G. L. Baldwin, who brought forth production schedules and some of the problems encountered; C. D. Baldwin who discussed the advantages and features of Acme oil separators, heat exchangers and condensers; Fritz Oertel, chief engineer, who discussed design

changes that have been initiated during the past year and who talked about a development program for new endeavors, and D. G. Merrill, who spoke about the advantages of Acme's evaporative condensers, "Bio-Cold" industrial unit coolers, and "Dry-Ex" water coolers.

15 PAPERS FEATURE ASRE MEETING

Fifteen technical papers, covering such subjects as food freezing, design developments in household and small commercial refrigerations, and unusual refrigeration applications, are scheduled for presentation at the 44th annual meeting of the American Society of Refrigerating Engineers, December 5 through 8, at the Hotel Statler in Washington, D. C.

A novel feature of this year's meeting will be a Domestic Refrigerator Forum at which engineers from the various household refrigerator manufacturing companies will engage in a full afternoon's round table discussion of such subjects as restrictor tubes, shelf material, fabrication developments, and new finishes. This innovation was first introduced at the Society's spring meeting this year where it met with unqualified success.

During the ASRE welcome luncheon on the first day of the meeting, a very prominent but as yet unannounced, speaker will talk to the refrigerating engineers on a political or business topic.

JOBBER SELLS FROM TRAILER DISPLAY

A 21-foot trailer, especially designed and built for the display of refrigeration and air conditioning products, is the newest sales tool being employed by Refrigerating & Power Specialties Co., West Coast wholesaler of refrigeration equipment with warehouses at San Francisco, Portland, Seattle, and Tacoma.

This new merchandising medium, which promotes the interests both of the jobbing firm and of the manufacturers which it represents, is being used as a means of taking the latest developments in the refrigeration field right to the door of the wholesaler's customers and prospects.

When the trailer is traveling in northern California, the lines displayed in it will be those of Brunner Mfg. Co., Peerless of America, and Sporlan Valve Co. All displays are laid out in an attractive manner with explanatory labels and posters.

When the trailer travels into Oregon and Washington territory, the Universal Cooler and Par lines of

HANDLES FEDDERS

W. D. Welch of Welch Radio Supply Co., St. Petersburg, Fla., has announced the appointment of his firm as distributor for the line of packaged air conditioning units manufactured by Fedders-Quigan Corp. The Welch firm will cover a territory consisting of 17 counties along the Florida west coast and in the central part of the state.

condensing units, compressors and parts will replace the Brunner line.

The Universal Cooler display will also serve to announce the fact that the Refrigerating & Power Specialties Co. has just been appointed exclusive distributor of that line in the state of Oregon and Washington.

The trailer carries a 100-foot reel of heavy electric cord which can be run into the dealer's office or shop for the purpose of obtaining current to operate the various unit cooler motors, thereby putting the display into action.

A catalog rack is included in the trailer.



This interior view of the sales trailer currently being used by Refrigerating & Power Specialties Co., West Coast wholesaler of refrigeration supplies, for taking its products right to the doors of its customers, shows the orderly arrangement of the various items.



$$\frac{3}{10,000}$$

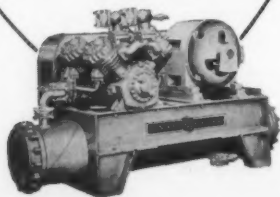
**of an INCH saves
your Refrigeration Dollars**

YOU CAN'T SEE or feel .0003 of an inch—the tolerance allowed in the grinding of pistons in General Electric condensing units. Yet this tiny measurement is one of the factors involved in producing units with H.V.E. (High Volumetric Efficiency)—which helps you get full value for every refrigeration power dollar you spend.

The uniformly snug fit of the pistons in cylinders of G-E compressors helps to minimize blow-by of refrigeration gas. It is one of the factors which makes it possible in G-E units for the pistons to push the maximum of refrigerant gas around the system at each stroke. Other factors are the thin valve plates, wide-opening, easy-lift valves, and the ample, unrestricted gas passages.

These hidden values in General Electric refrigeration units can save you money in original cost or operating cost, or both. See your G-E distributor or contractor today. *General Electric Company, Air Conditioning Department, Section R-81411 Bloomfield, N. J.*

MAKE A
GENERAL ELECTRIC
CONDENSING UNIT
THE HEART OF YOUR
REFRIGERATION SYSTEM



GENERAL  **ELECTRIC**

MARVAIR HEAT PUMPS . . .

Continued from page 35

heat pump is economically practical to install is usually one of many rooms, one in keeping with a resident who is capable of paying for and is desirous of enjoying year around comfort. Many of these homes are in outlying districts or rural areas, and the availability of three phase electric service in these areas is not general.

In order to power a heat pump of

sufficient size to take care of the larger home a motor of from 10 to 15 or even 20 hp is required, and such a motor is not practical to operate on single phase electric service. Hence, the only solution is either to have the power company run three phase service to the installation (which is very costly, if not impossible) or to install a series of smaller single phase units. In either case this adds considerably to the installation cost and limits the market tremendously.

Another handicap to the electrically operated unit is the cost of the energy

used in the operation. We consider one of the cheapest luxuries in a home to be electricity, and that is true where the consumption is not on the basis of power usage. To use electricity for driving a heat pump, however, we have found from experience that anything over 1 1/4 per kwh makes the operation expensive in comparison to the use of other fuels.

We have Marvairs operating on electricity that costs 4 mills per kwh, and also have units operating on electricity that costs 6 cents per kwh. Unfortunately, the 4-mill electricity is available only in very confined areas and the average minimum cost throughout the country of electricity

**PREVENT
OVER-PRESSURE
TROUBLE**

*in your
refrigeration
units*

with

BS&B SAFETY HEADS

Protect receivers and copper tubing from rupture. Save compressors from destructive over-pressure. SAFETY HEADS offer that positive margin of safety that prevents such accidents. Eliminate costly equipment losses . . . save on costly shut-downs. The simple rupture disc of the SAFETY HEAD absorbs the shock of over-pressure . . . bursts in tension at pre-set pressure.

SAFETY HEADS provide a full-throated, pipe-sized escape point. Fractured discs are easily, quickly replaced. Tamper-proof, fool proof SAFETY HEADS offer you guaranteed performance. A wide selection of types assures you of tailor-made protection. Write today for complete details. Address Special Products Division, Black, Sivalls & Bryson, Inc., Power and Light Building, Kansas City 6, Mo.



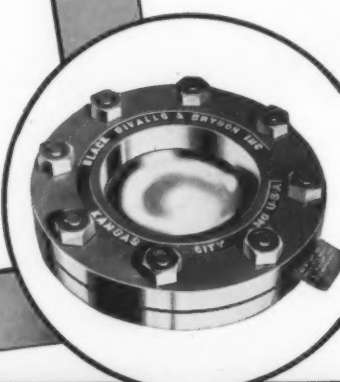
BLACK, SIVALLS & BRYSON, INC.

FOREIGN INQUIRIES INVITED

Only Address: BLACK, KANSAS CITY, U.S.A.

KANSAS CITY, MO.

OKLAHOMA CITY, OKLA.



*"It's the butcher's wife's
idea—they've been evicted
from their apartment!"*

for operation of a heat pump would probably be 2 cents per kwh.

Two cent per kwh electricity makes the operation of a residential heat pump pretty much of a luxury, but can be justified by the intangible benefits which result. The heat pump is, of course, absolutely clean; there is no combustion, hence no products of combustion. In addition, the filters in the unit absorb much of that dirt, soot, and smoke which may be brought in from the outside.

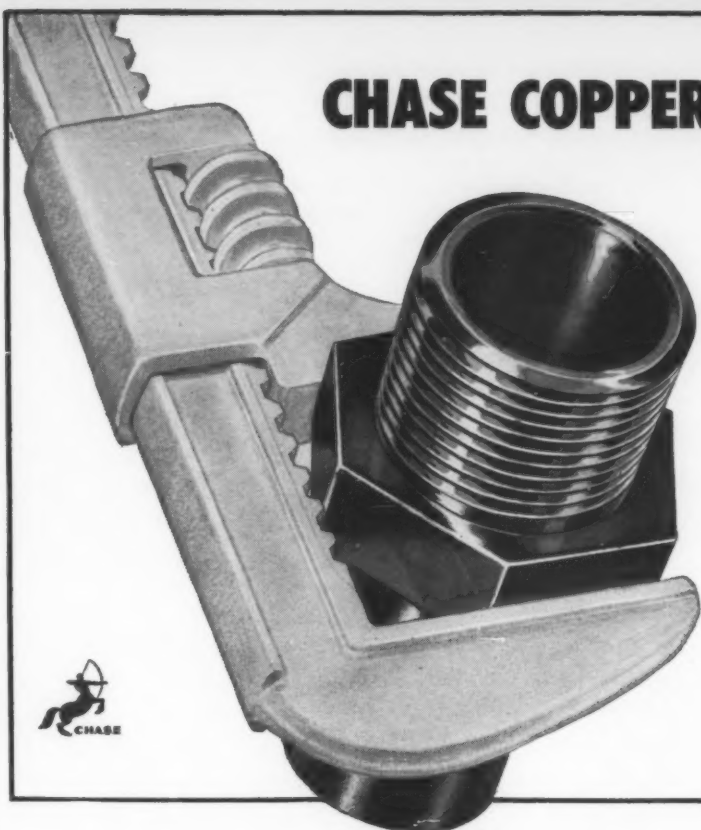
If personal comfort and similar intangibles are considered in evaluating its operation, then certainly the operating cost of an electric heat pump can be justified economically. Unfortunately, however, the public is not in the habit of converting intangibles into values, and so in order to meet this large home market we have developed a heat pump operated with a gas engine. This is known as a gas Marvair and has advantages which justify any possible operational problem.

The gas Marvair is, in operation, exactly the same as the electric Marvair except that the source of energy for power is gas. This gas is used to power a very quiet and efficient gas

CHASE COPPER SOLDER-JOINT FITTING ADAPTERS

(MADE OF TELLURIUM COPPER)

... Can
take
wrench
stresses!



NO need to fear pulling a wrench on Chase Copper Solder-Joint Fitting Adapters. They are designed for greater strength and resistance to deformation to withstand the stresses imparted by wrenches. Chase Adapters are also made of Tellurium* Copper, a special patented Chase alloy that machines into uniform, clean-cut threads—for tight joints.

In addition, every Chase Copper Tube Adapter is made with SO₂ threads in sizes through 1" nominal. And all Chase *Wrought Copper* Fittings are *made to fit* the tube accurately—and are as *sound* and *non-porous* as the tube itself.

Ask your distributor for Chase Copper Refrigerator Tube and Fittings. Both are made to the same high standard of quality.

*U. S. Pat. No. 2,027,907



Chase Copper Refrigerator Service Tube in sizes $\frac{1}{8}$ " to $\frac{3}{8}$ " diameter is packed in this *extra handy* package that prevents two-layer coil of tube from shifting. Tube is *extra soft* for easy working, and packaged in 50' standard lengths, with special sealed ends.

Chase



the Nation's Headquarters for
BRASS & COPPER

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SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . handiest way to buy brass

ALBANY ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS
NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER SAN FRANCISCO SEATTLE ST. LOUIS WATERBURY (Indicates Sales Office Only)

engine which drives the refrigeration system, thus replacing the electric motor.

There is, of course, an additional advantage in the use of this gas unit, and that is that the heat of the power unit is recovered from the gas engine and is added to the heat taken from the condenser of the refrigeration system, thus boosting the heat from 110 F at the plenum to roughly 135 F.

This heat is absorbed from the oil in the engine, from the water jacket, and from the exhaust of the engine. Our tests indicate that we are absorb-

ing 92% of the input energy of the gas in work done and heat recovery. When we combine the heat recovery of the engine to the result of the heat pump operation we find that we have a COP (coefficient of performance) of better than 1.8 in actual test with 50 F water, which is approximately two and a half times the efficiency of standard combustion heating plants.

These gas Marvairs, of course, can be reversed, just as can the electric jobs, to become cooling units. The operation is just as automatic. When the thermostat calls for heat, regard-

less of whether it is the electric or the gas Marvair, the unit cycles until the thermostat is satisfied, and there is no manual operation necessary. The same is true when the unit is on the cooling cycle.

The gas Marvair, incidentally, is designed to operate on either natural, manufactured, or LP gas, and is as flexible in location as the electric unit. At the present time we are only making the gas Marvair in one size, and that is up to 250,000 Btu per hour on heating and up to 10 tons on cooling.

Three Sizes Available

The electric Marvairs are made in three sizes—60,000 Btu on heating and 3 tons on cooling; 100,000 Btu on heating and 5 tons on cooling, and 125,000 Btu on heating and 7½ tons on cooling.

The cost of energy on heating of the gas Marvair can be estimated at output 1.8 times input, and on cooling as one Btu input for one Btu extracted.

The fact that all heat pumps can deliver more than their energy input is due to the fact that the balance is taken from the source of heat, which can be water pumped and wasted, a closed system in the ground water, or one of the various systems used to extract heat from the ground. Local conditions vary and with these local conditions comes a variance of extracting heat during the winter and absorbing heat during the summer.

Heat Source Varies

Inasmuch as these are local conditions, general statements cannot be made to cover them. Most of the Marvair installations, however, have used as a source of heat either water pumped directly from the ground and wasted, or a U-tube inserted into a deep well with the water recirculated in this tube to bring the heat from the ground to the unit.

In most cases the pumped and wasted water is the cheapest from an installation standpoint.

In Florida and many other locations, artesian wells are available at very shallow depths and ample water can be had for a drilling cost of not over \$100. In other areas we find a static water level close to the surface, but the water flow is not of sufficient volume to properly carry a heat pump in the heavy heating season.



ECONOMIZE WITH ELECTRIMATIC

Forged Flare Nuts and Fittings

Flexible Charging Lines

Driers and Strainers

Water Regulating Valves

Suction Throttling Valves

Liquid and Suction Stop Valves

Suction Pressure Regulators

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CHICAGO 16, ILL.

In such cases it is usually better to drill a deep well, and by deep I mean 66-2/3 feet of well below the static water level in the ground for every ton of refrigeration. That would make a well for a 5 ton Marvair drilled to a depth of 335 feet below water level in the ground.

This depth is necessary for a proper heat flow through the ground and water into the pipe which absorbs the heat. For proper operation it is also necessary that the ground temperature be approximately 58 F in order to get 50 F water coming into the Marvair, as we have found from experience that there is a loss of approximately 8 degrees in the heat transfer from the ground into the water.

Bear in mind that you must have an adequate source of heat for the Marvair, otherwise, it will be just like an oil burner without oil; you will have lost your source of heat.

Cost of Wells

We have had Marvairs installed with both coils and with tanks in the ground to absorb heat, but only where the ground temperature is extremely warm have these been entirely satisfactory in winter operation. Also, we have found that occupants of homes would prefer to pay more money for a small hole in their lawn than to have an installation saving that will necessitate digging up a considerable part of their lawn.

The cost of drilling depends upon local subterranean conditions. We have had wells drilled for Marvair installations for as low as 35c a lineal foot, not including the casing, while others have cost as much as \$6 a lineal foot. These various conditions determine pretty much what type of heat source is to be used.

It is a general standard that using an ample supply of 50F water the operation of the electric heat pump with 1 cent kwh electricity is the equivalent to \$10 per ton coal. The operation of the Gas Marvair in comparison to 1 cent kwh electricity means that gas would have to cost 15 cents per therm on heating to be equivalent. Where gas rates are 6 cents per therm, which is in many of the areas in the country, electricity must sell for 4 mills per kwh to make an equivalent heating operation cost.

We have proven that the heat pump not only has practical economic value, but also that it delivers the intangi-

bles that make life better worth living.

In most areas gas today is the most economic fuel for home heating. With the gas Marvair heating can be provided with less than 50% of the operating cost, plus comfort, convenience, cleanliness, and other benefits unattainable with any other type of heating. Recognizing these facts, it is apparent that the refrigeration industry is facing a new and tremendous field.

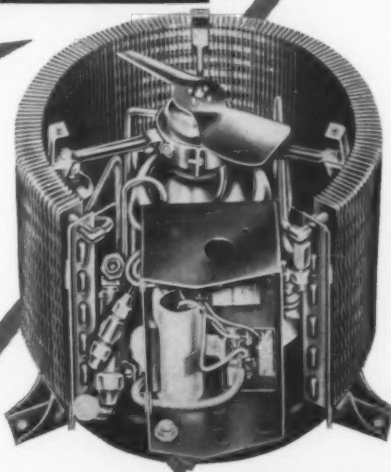
Six years of engineering and research have brought us to the above results. Certainly this unit that is

practical in all respects justifies its installation in homes and commercial buildings. Field usage will bring about developments that will result in further improvements and will build sales volume sufficiently so that the cost of the unit can be lowered to a which places it within the reach of many thousands more homes.

The public has shown a tremendous interest in the heat pump. Nothing in recent years has captured the public fancy such as this, but it is going to take time and volume to bring the unit within the reach of the masses.

EASY-FLO and SIL-FOS *make steel and copper joints that are* **leak-tight for life!**

Most steel and copper joints in modern hermetically sealed condenser units like the one shown here are brazed with EASY-FLO and SIL-FOS.



The unit above is one of hundreds of different refrigeration and air conditioning units in which from one to well over a hundred steel and copper joints are brazed with EASY-FLO and SIL-FOS. And here's why these two low-temperature silver brazing alloys are so widely used today in the production, installation and repair of such equipment—(1) they assure joints that are leak-tight for the life of the equipment—(2) their low working temperatures, extreme fluidity and ease of application combine to make possible high production rates, and low labor, alloy and heating costs. **BULLETINS 12-A and 15** will give you the facts. Write for them today.

HANDY & HARMAN

82 FULTON STREET

NEW YORK 7, N. Y.

Bridgeport, Conn. • Chicago, Ill. • Los Angeles, Cal. • Providence, R. I. • Toronto, Canada
Agents in Principal Cities

As you no doubt know, codes compare in importance with our city laws, and I am afraid many of these laws would be continually broken if it were not for our enforcement procedures, such as our police departments and our courts, etc. But let's go further. In establishing local codes the community realizes the necessity for some instrument which will legally regulate the usage of modern refrigeration

systems and equipment in their application to human needs and at the same time establish construction and operational requirements whereby the health and safety of the general public is assured.

In establishing construction and operational requirements it naturally follows that the Refrigeration Contractor has a direct obligation to perform his job to the best standards of the industry, to protect public health and safety and to comply with the rules and regulations as set forth in the local Refrigeration Ordinances.

THOUSANDS OF HEAT-X COOLERS



**WATER COOLERS
SODA COOLERS
BEER COOLERS
COOLER CARBONATORS
HEAT EXCHANGERS**

Thousands are benefiting by the advanced design of Heat-X Cast Aluminum Coolers. Separate liquid and refrigerant coils are cast in an aluminum block. Result: greater sanitation, freedom from freeze-up damage, higher efficiency, fast cooling, and economy of space.

THE HEAT-X-CHANGER CO., INC.
415 Lexington Avenue, New York 17, N. Y. Brewster, N. Y.

What better way to control this problem of health and safety to the general public, to assure them of qualified competent workmanship than by some form of examination and licensing of contractors. The benefits to be derived by this form of regulation are many:

(1) The general public is assured a higher standard of workmanship.

(2) Closer regulation is possible by the various safety bureaus assuring the health and safety of the general public.

(3) It results in elevating the Refrigeration Contractor in his chosen profession and also in the eyes of the general public, his customers.

(4) It enables the legitimate contractor to know that his competition has complied with a certain set of standards as laid down in his examination.

(5) This procedure weeds out over a period of time certain undesirables and maintains closer supervision over those entering this profession.

(6) Time has proven beyond any doubt that the contractor is placing a higher valuation on his license and as a result is receiving greater customer confidence.

The six reasons above were written realizing that it is impossible to legislate a good engineered installation and also realizing that a group of contractors advocating local licensing regulations were in a manner of speaking placing their heads in a noose as far as local enforcement agencies were concerned, but fully determined that the results attained justified any risk involved for the *legitimate refrigeration contractor*.

The problem of attempting to formulate a licensing regulation or the adopting of Code regulations is a huge one, for you have entering this picture selfish interests, personal egos and dominating minority groups. We have recently had this forcefully brought home to us by the actions of RISAC and ACRMA.

We have always had the greatest respect for these gentlemen as long as they stayed in their own back yard but their ambiguous statements and their misleading propaganda clearly demonstrate to what lengths minority groups will go to impose their dictates on the majority.

These associations and Mr. Auerbach, by the questions they raise and the statements they make, leave no doubt in my mind they have never

read the administrative section of a model modern code. Such a code may be obtained by writing Mr. J. C. Rehard, Chief Safety Engineer for the City of Detroit, 112 E. Jefferson Ave., Detroit, Mich.

Again we say this is an all-Industry problem and that unless the Refrigeration Industry, which is Mr. Auerbach's business and ours, recognizes that the public must receive good equipment, properly installed, supplying satisfactory results, we are going to find considerable public resistance being built up in the sale of our wares and the reputation of our industry will be at stake.

It is our considered opinion that a good licensing law coupled to a good safety code will protect the public and will not hurt the manufacturer or the contractor whose intentions are to do a good job.

Again I call your attention to that motor car I mentioned before, about it not squeaking when it was standing still. Unlike that motor car, the NARC is not standing still—hence the few squeaks.

JAMES E. PERRY

THE LAST WORD . . .

Continued from page 33

room "climate" to his own taste by simply turning a dial.

Through use of the conduit system and elimination of all horizontal ducts in the hotel section, it was possible to build 11 full floors of guest-rooms. Without the conduit system this would have been impossible.

Chilled water for all air conditioning is provided by three Carrier centrifugal refrigerating machines located in the sub-basement. These units have a total capacity of 1500 tons of refrigeration. They are connected in parallel to provide a chilled water loop, a source of chilled water for both the hotel and store apparatus. Separate pumps and piping circuits are provided for those systems servicing the hotel and those servicing the stores, but both circuits draw from and return to the main loop.

The necessary air cooling is performed in all systems by cooling coils through which chilled water is circulated. The heat of the outside air required for ventilation and the heat of the occupied spaces through the return air is thus transmitted to the water which is returned to the main loop for further chilling.

An open expansion tank with automatic city water makeup is located in the penthouse and all circuits of the chilled water piping system are vented to this tank.

A cooling tower, located on the roof, cools the condenser water required for the centrifugal machine condensers. This water is circulated through the condensers and the tower by means of the circulating pumps located in the sub-basement machine room. Heat drawn from the building is exhausted by horizontal rotary fans above the cooling tower.

Generally described, the air handling apparatus consists of 99 separate fans ranging in capacity from 350 to 49,000 cfm, and driven by motors ranging in size from 1/4 to 30 hp. The total connected fan horsepower load is approximately 500 and results in a total air circulation of approximately 1,200,000 cfm.

The air conditioning systems serving the stores and main hotel areas are conventional built-up apparatus which include steam preheaters and reheaters, filters, spray coil dehumidifiers, centrifugal type supply

Just off the Press...

Ask your wholesaler for it!

The new THAWZONE Manual is a most valuable addition to the technical library of every refrigeration engineer. It answers many questions frequently asked regarding T.Z.'s reaction in a refrigeration system. It gives precise instructions as to when and how Thawzone should be applied in order to insure dehydration and acid neutralization.

If your refrigeration equipment wholesaler can't give you a copy of this manual, write us on your letterhead.

HIGH-SIDE CHEMICALS CO.

175 VERONA AVE.

NEWARK 4, N. J.

ALSO MAKERS OF



*TRADE MARK REG. U. S. PAT. OFF.

and return fans, and face and bypass damper control.

In the 400 hotel guest rooms the circulating pumps that furnish cold or warm water (depending on the season) to the window units are located in the seventh floor apparatus room also and feed through the eighth floor ceiling to vertical risers with the returns collected in upper floor ceiling space.

Individual control of space temperatures in the various guest rooms is provided year around by the modulation of these water temperatures and

by the control of the flow through the individual unit coils to accomplish maximum flexibility of space temperature. While casement sections of the windows can be opened, guests will be encouraged to keep them closed at all times. The air conditioning system provides for 100 per cent outside air supply to the room units.

The hotel corridors are cooled and ventilated by a separate system of supply and exhaust to prevent further the interchange of air between the guest rooms.

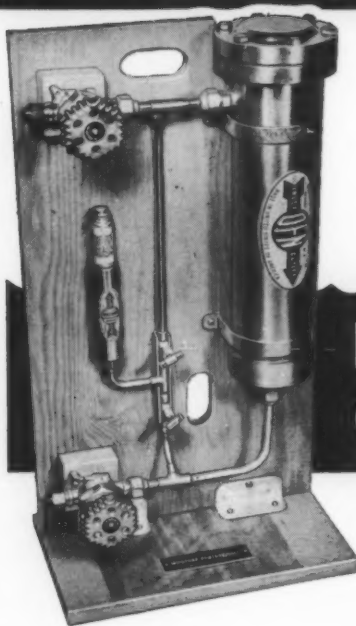
Due to the combination of kitchens

on three levels, and cocktail bars on two levels, together with extensive drinking water refrigeration systems, a considerable amount of commercial refrigeration was required.

There are 45 different refrigerated spaces, ranging from a 3-cu. ft. reach-in box to a 910 cu. ft. wine room, the latter being located in the penthouse to chill wines for the patrons of the Gourmet restaurant. Carrier "Freon" condensing units and cold diffusers serve this entire commercial refrigeration system.

In summer months, cool, filtered air will be distributed in the Gourmet area from a Carrier "Weathermaker" (fan and coil) unit. In winter, heating will be furnished by the combined facilities of heating coils in the Weathermaker and radiant heating from the ceiling of the restaurant proper.

REVOLUTIONARY DRYING METHOD!



*Provides positive,
"one-shot" cure
for
moisture troubles*

DFN MOISTURE CONTROL UNIT

*Read these
advantages!*

LOW COST DRYING!

One cartridge has the capacity to pick up and hold over 18 teaspoonfuls of water. It's portable—serves many jobs in field, shop or factory. Cartridge is 100% effective until exhausted; easily replaced. Saves time, eliminates call-backs.

SIMPLIFIED DRYING!

Easy installation in liquid line because Unit, with special dessicant, operates at refrigerant temperatures up to -150° F. No complicated hook-ups, no working in confined spaces.

See the DFN Moisture Control Unit at your wholesaler. Write us for detailed literature.

FASTER DRYING!

Gets wettest systems operating normally in 15-30 minutes. Prevents deposit of ice in expansion valve or evaporator.

COMPLETE DRYING!

—down to -60° dew point by running 4 minutes per pound of refrigerant.

VISUAL DRYING!

Moisture Indicator tells when system is wet or dry—tells when drier needs replacement. No guessing.

McIntire Connector Company

257 JEFFERSON ST.

NEWARK 5, N. J.

CHICAGO JOBBER MOVES

Having outgrown its former location, H. W. Blythe Co., Chicago wholesaler of refrigeration equipment and supplies, has moved to new and larger quarters at 529 N. Milwaukee Ave. These new quarters also have frontage on Ohio St. where there is adequate parking space for the pick-up trade.

IT DIDN'T GET AWAY!



F. W. Pelton (left), owner of Glendale Refrigeration Sales & Service, Glendale, Calif., goes fishing for more than refrigeration sales, as this photo testifies. Here he poses with a 152-pound Marlin which he landed on a recent fishing expedition. John M. Schlemmer (center), sales manager of the refrigeration division of General Controls Co., helps Pelton display his trophy as the boat's captain looks on.

**For Positive Maintenance of
HIGH HUMIDITY...**

PEERLESS

FLASH COOLERS!

● Where coolness without dehydration is essential, PEERLESS Flash Coolers give the desired performance. These are the original Flash Coolers, introduced 15 years ago by PEERLESS, and improved to their present high-efficiency in the refrigerating of cut meats, flowers, and all products where high humidity must be maintained. Wide, shallow coils spread under ceilings enable these units to deliver large volumes of cooled air with high relative humidity. Install them in cold storage boxes, walk-in and reach-in refrigerators, for retailers, wholesale houses, packing houses. Better preservation of products by PEERLESS Flash Coolers brings customer satisfaction.

For superior performance specify all these PEERLESS products: Flash Plates, Flash Coolers, Unit Coolers, Ice Cube Makers, Fin Coils, Off Center Coils, Expansion Valves and Capacity Boosters. Write for Details.

● Higher operating back pressure with low flat coils provides higher compressor capacity, a more efficient installation with reduced operating cost.

● Open-louvered drip pan permits free circulation of air through coil surface which produces large volumes of cool tempered air flowing downward by gravity over stored products.

● Refrigerant circuit is continuous copper tube with aluminum fins — non-soldered return bends. No Joints! — No Leaks!

● The famous Peerless Internal Rifling swirls refrigerant over entire interior surface of tubing, insuring a 100% internal wetted surface and in turn 100% coil efficiency.

● A Flash Cooler occupies a space not to exceed 16" from ceiling. A complete unit, it is quickly, easily installed by bolting the convenient hangers to ceiling.

**SOLD THROUGH LEADING
REFRIGERATION SUPPLY WHOLESALERS**

PEERLESS

of AMERICA, Inc.



General Sales Offices 2901 Lawrence Ave., Chicago 25, Illinois, U. S. A.

NOVEMBER, 1948

53

Slash VALVE INVENTORY COSTS UP TO 900%



GENERAL CONTROLS engineering offers tremendous savings in inventory investment, stock space and handling costs.

THE NEW SELECTIVE CAPACITY CARTRIDGE PROVIDES INSTANT SIZING ADJUSTMENT

COMPARE THESE FACTS

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Separate valves for each back pressure or suction temperature range. Separate valves for each capacity size.

GENERAL CONTROLS V-200 VALVES—One valve for ALL back pressure or suction temperature ranges. One valve with selective cartridge for full range of capacities.

For Freon, Methyl Chloride and Sulphur Dioxide

For Full Capacity Range in each body size at all back pressures with any one refrigerant

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Useful LITERATURE

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the numbers of the items you wish to receive, and send it to THE REFRIGERATION INDUSTRY, 1240 Ontario Street, Cleveland 13, Ohio. Your requests will then be forwarded directly to the companies concerned.

337—Frozen Food Case . . . A catalog sheet describing, illustrating, and listing specifications of the new Model 72F self-service frozen food display case introduced by Fogel Refrigerator Co. A detailed construction drawing is included.

338—Air Conditioning Batteries . . . A 6-page technical brochure (No. GB-780) on storage batteries for car lighting and air conditioning. Full technical data is provided with liberal illustration. A giant exploded view shows every construction feature. Available from Gould Storage Battery Corp.

339—Tube Cutter . . . Bulletin No. 367 covering the No. 274-F ball bearing action tube cutter just announced by Imperial

Brass Mfg. Co. Photos show tool in actual use, while diagrams illustrate its outstanding features. Prices of the tool and its parts are listed.

340—Bottle Vendor . . . A new gravity feed, manually operated, bottle beverage dispenser known as "Vend-Rite" is described and illustrated in this 4-page, 2-color promotional folder. Features are highlighted and applications indicated. Available from Vend-Rite Co.

341—"Scotch" Tape . . . A profusely illustrated, 2-color, 24-page brochure describing the many types of "Scotch" electrical tapes, listing their properties, and demonstrating their varied applications. Available from Minnesota Mining & Mfg. Co.

342—Anti-Smudge Cone . . . Bulletin K-22 covering the anti-smudge cone now available for use with flush mounted "Kno-Draft" adjustable air diffusers. Specifications are listed and advantages cited. Available from W. B. Connor Engineering Corp.

343—Potentiometers . . . Instruments and systems for electric contact control and electric proportional control are presented in this 32-page catalog (No. 15-13) describing the "Elektronik" line of potentiometers. Illustrations include schematic diagrams, photographs, and dimensional drawings. Tables give data on selection methods. Available from Brown Instrument Co.

344—Blast Gun . . . A catalog sheet diagramming and describing the "Tornado" combination blast gun for economical surface preparation and cleaning in finishing or semi-finishing operations in shop and factory. Usable as sand blaster, solvent applicator, liquid sprayer, or blow gun. Available from Engineered Products, Inc.

345—Coke Dispenser . . . A 3-color folder illustrating and describing the newly designed "Perfex" dispenser for serving draft Coca-Cola. Mechanical specifications are outlined and installation locations are suggested. Available from Bastian-Blessing Co.

346—Locker Insulation . . . A folder describing and illustrating applications of Wood Conversion Co.'s "K-25 Fiber" for cold storage and locker plant insulation. Recommended thickness for various applications are listed.

LOWER COST—Better SEAL Brush or Spray Adhesive COLD

The MODERN way to adhere vapor-seal membranes and insulations is to apply Laykold Adhesive COLD, right from the barrel, either with brush or high-pressure spray. YOU like the ease of handling and LOWER LABOR COST. Your CUSTOMERS like the complete SEAL which gives them LOWER MAINTENANCE and OPERATING COST.

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INSULATION ADHESIVE

Seals Membranes — Adheres Insulation

1. **COSTS LESS** in labor to apply.
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6. **UNIFORM ADHESION** — no lumps, no missed spots, air pockets.
7. **SELF-HEALS** nails, skewers, cracks, insulation joints.
8. **STAYS ALIVE** — keeps adhering.

Spray Laykold Products and reduce labor costs. Try them on ONE job — you'll never want to go back to old methods.

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WEATHERCOAT — protection for block insulations, concrete, brick.

HYDROPEL — an admix to reduce water absorption in concrete.

FLOOR MASTIC BINDER — to make ideal floors for cold rooms.

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REFRIGERATION BINDER — for waterproof plaster finish and with Lumnite, a wet wall adhesive.



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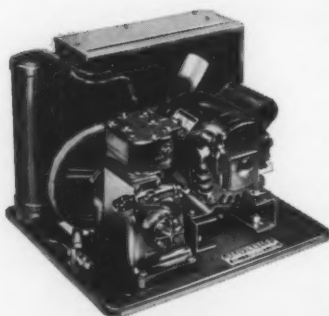
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**KELVINATOR parts are priced right
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You're *right* on every job when you use the *dependable* Kelvinator-made parts available from your Kelvinator Parts Depot.

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Stop in at your nearest Kelvinator Parts Depot some day soon. You're sure to find exactly what you want—and you'll like the fast, friendly Kelvinator service. Mail or phone orders handled promptly... Kelvinator, Division of Nash-Kelvinator Corporation, Detroit, Michigan.

For condensing units...precision-built for long-lasting, economical service...*get Kelvinator*. You can be sure that over 30 years of experience in the building of commercial refrigeration brings you the best. And they're *competitively priced*.

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Refrigerator Door Gaskets Are Again
Made From Crude Rubber

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All-Steel GAUGE SETS

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Semi-Steel SHUT-OFF VALVES

Highest grade non-porous metal—full size ports—clean cut threads. Double seated stem—Shank design base—perfect alignment. Long life packing ring.



See your jobber or write for prices.

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New PRODUCTS



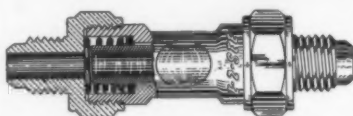
For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

Liquid Indicator • • • P-312

Product: "E-Z-See" leak-proof indicator.

Manufacturer: Remco, Inc., Zelenople, Pa.

Features: Easy to see through tubular high pressure Pyrex gauge glass. Both sides are open to admit



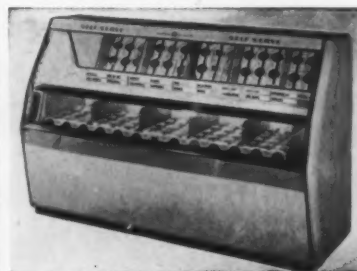
ample light. Can't leak because springs automatically maintain just the right amount of force upon the neoprene gaskets to form a positive seal around the glass and compensate for "cold flowing". In addition, refrigerant pressure applying on the gaskets assists the springs in making an even tighter seal. Safe to use because glass is protected from damage by unique slotting arrangement in the rugged brass body.

Frozen Food Case • • • P-313

Product: "Super-Serv" frozen food case.

Manufacturer: Super-Cold Corp., Los Angeles, Calif.

Features: Low temperature counterpart of the recently announced normal temperature "Super-Serv" self-service case. Shopping level height. Divided well space for easy segregation of food packages. Easy conver-

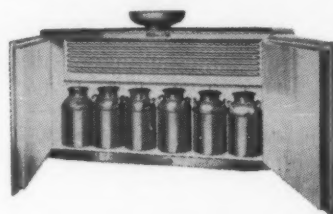


sion for in-line multiple installations. Mirror back reflects stack of packages in case. Low operating cost.

Milk Cooler • • • • • P-314

Product: "Duncan" Dry-Cold milk refrigerator.

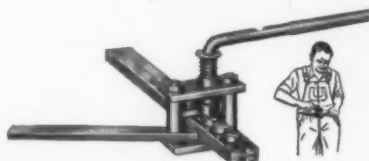
Manufacturer: Star Pump & Cooler Corp., St. Louis, Mo.



Features: Filters, aerates, refrigerates, and stores milk all in one operation. No water is required. Front opening doors eliminate need of lifting heavy milk cans to insert them in and remove them from the cooler. A completely packaged unit, the Dry-Cold is available in 4-can and 6-can models.

Flaring Tool • • • • • P-315

Product: "Speedy" flaring tool.



Manufacturer: Chicago Specialty Mfg. Co., Chicago, Ill.

Features: Eliminates tightening of screws, setting of clamps, and cumbersome vise arrangements. Any soft type tubing up to 3/4-inch is merely placed in the sizing bar and inserted against stops which line up and center the tubing. Cam action lever keeps



"Crown Super" marks tenth year by adding 14th Servel Condensing Unit

All refrigeration fixtures "powered by Servel" since 1938

Back in 1938 when the Crown Super Market at Hartford, Connecticut, purchased their first condensing unit to refrigerate a 10'x9'x10' walk-in cooler, they selected a 2 HP air-cooled Servel. Today, with the original Servel unit still operating efficiently, they have a total of fourteen Servel units.

Besides the first installation, the refrigeration equipment includes a 3 HP water-cooled Servel unit connected to a 14'x20'x10' meat chill room, and a 3/4 HP air-cooled unit for a storage cooler. There are two eight-foot display cases, one for pastry and the other for delicatessen, each powered by a 1/2 HP unit. To refrigerate a 48-foot line of single duty display cases, a 1 1/2 HP unit is used.

A frozen food display case is refrig-

erated by a Servel 1/2 HP model while a freezer cabinet is connected to a low-temperature 1/2 HP Supermetic. Refrigerating a self-service vegetable case, a dairy display case, and a fruit and vegetable storage room, are three 3/4 HP Supermetics.

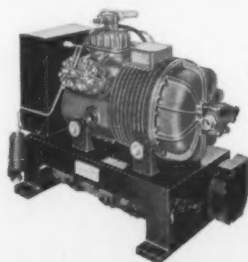
In the store's bakery department, the water-cooling system is refrigerated by a 1 1/2 HP air-cooled unit, while a dough-retarding refrigerator is powered by a

1/2 HP unit. The bakery storage room, measuring 10'x20'x10', is refrigerated by a 2 HP water-cooled unit.

You have plenty of opportunities for repeat sales like this with Servel Condensing Units. A good market exists among our estimated 11,200 super markets and among other stores. For further details write now for free booklet. Address Servel, Inc., 4810 Kentucky Ave., Evansville 20, Ind.



The Crown Super Market, 620 Albany Avenue, Hartford, Conn., has been an ardent booster of Servel Condensing Units since they acquired their first unit ten years ago. The Rex Pump Company, Servel distributor for that area, just recently added Servel unit number fourteen.



Illustrated is a water-cooled six-cylinder Supermetic. Servel Supermetics in integral horsepower sizes (1 HP through 3 HP) are admirably suited to the refrigeration requirements of large markets, food processors, dairies, restaurants, and taverns. Smaller hermetically sealed models available in sizes from 1/4 through 3/4 HP.

Servel Inc.

ELECTRIC REFRIGERATION DIVISION, EVANSVILLE 20, INDIANA

tubing in a firm flaring position and acts as a brace against the body. A half turn of the crank and tubing is flared. Made of case hardened, cold rolled steel with high carbon steel cam and flaring point.

Drawer-Type Freezer • • P-316

Product: Improved Model 80 "Freez-All" drawer type home freezer.

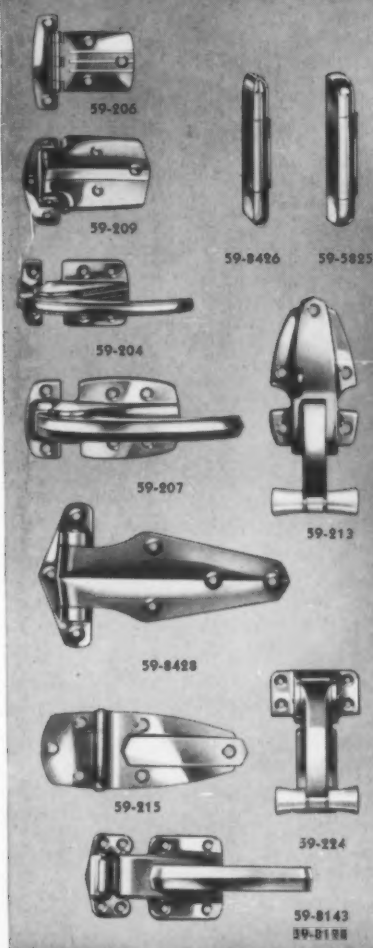
Manufacturer: Portable Elevator Mfg. Co., Bloomington, Ill.

Features: Interior redesigning



has increased freezing and storage capacity to 8.8 cu. ft. Improved design of cold plate assembly will permit better natural air circulation. New type gasket and breaker strip assures tighter door seal. Aluminum die-formed door pan has been added. Sharp freeze compartment door swings down. Outer door is provided with lock which prevents access to power unit and cold control by unauthorized persons. Three storage drawers are mounted on ball bearing rollers.

REFRIGERATOR HARDWARE by NATIONAL LOCK...



DESIGNED FOR A VARIETY OF USES

Extensively field-proven on commercial and domestic applications, these matched designs of chromium plated refrigerator hardware consistently "ring the bell" with users. Ideal for Reach-in Cabinets, Display Cases, Back Bars, Florists Boxes, Bottled Beverage Coolers, Draft Beer Equipment, Coin-Operated Refrigerated Dispensing Machines, Milk Coolers, Low Temperature horizontal or vertical Cabinets, Stokers and many other units of refrigeration equipment.

Ask your jobber for complete information and prices.

NATIONAL LOCK COMPANY
ROCKFORD • ILLINOIS
REFRIGERATOR HARDWARE DIVISION

Coin Meter • • • • • P-317

Product: M-20 "Meter-Matic" coin meter for use in rental of refrigerators, air conditioning units, and other appliances.

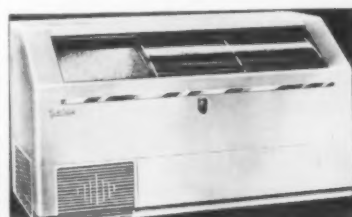
Manufacturer: International Register Co., Chicago, Ill.

Features: Especially designed to handle a wide variety of minute timings, it can collect a quarter for every 5 minutes, 10 minutes, etc. up to 60 minutes. Operates on quarters only. Timings can be changed by anyone in less than 3 minutes by merely changing timing gears. This requires only the use of a screwdriver. Meter accommodates \$40 in payments. Pre-payment capacity is 1 to 23 quarters. Case is of 21-gauge drawn steel and is equipped with a special heavy-duty lock. Installation is simple. Can be mounted anywhere.

Dry Beverage Cooler • • P-318

Product: 1949 model dry beverage cooler and all-purpose refrigerator.

Manufacturer: Jordon Refrigerator Co., Inc., Philadelphia, Pa.

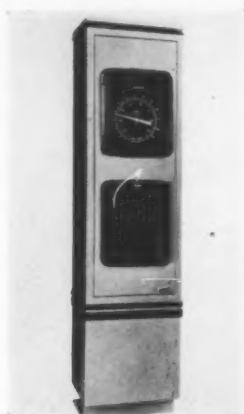


Features: Self-contained units are available in three lengths—4 foot 6 inches, 6 foot 3 inches, and 8 foot. Fingertip-action, roll-back doors of moulded hard rubber curved to slide smoothly in specially cast runners. Exterior and interior finished in stain-

less steel and aluminum. Equipped with food shelf within easy access over compressor housing compartment. Cooling provided by extra large, self-defrosting blower coil and hermetically sealed condensing unit. Accommodates from 12 to 26 cases of standard 12-ounce bottles, depending upon model.

Instrument Cabinet • • P-319

Product: Packaged instrument cabinet suitable for almost universal



application with industrial or commercial air conditioning systems.

Manufacturer: Foxboro Co., Foxboro, Mass.

Features: Cabinet is equipped with Dynalog (electronic) temperature indicator, above a key-switch panel by means of which the indicator is connected with numerous resistance bulb circuits for measuring temperatures at various points. Indicating instrument has dual range, the outer scale being for dry bulb temperature and the inner scale for dew point temperature, as determined by "Dewcel" measuring elements. Fully enclosed cabinet is 80 inches high, 20 inches wide, and 15 inches deep. Steel doors at back provide access to wiring. Only external connections are necessary when cabinet is installed.

Charging Hose • • • • P-320

Product: "Speed-Angle" charging hose designed to speed up charging and purging of refrigerating systems.

Manufacturer: Jarrow Products, Chicago, Ill.

Features: Incorporating an innovation in coupler design, this hose is

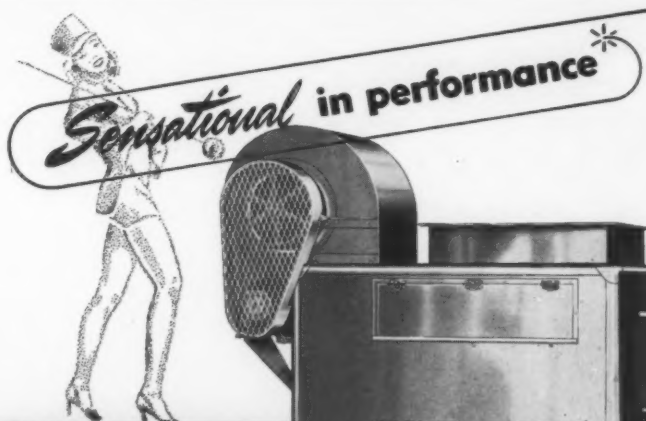
said to eliminate sharp right-angle bends and to be exceptionally suited to all applications where space at the service valve is limited. No flexing is required in making connections. The quick couplers incorporated in the hose are of patented design, featuring a tight sealing rubber gasket firmly entrenched in a machined groove. The gasket cannot blow out, yet is easily replaced in a matter of seconds. Hose is tested to withstand 600 pounds pressure. Overall length is 30 inches. Exact replacement couplers and washers are readily available.

Dewpoint Indicator • • P-321

Product: "Alnor Dewpointer" instrument for measuring dew point.

Manufacturer: Illinois Testing Laboratories, Chicago, Ill.

Features: Three new advantages built into this unit. Monometer scale has been made longer to increase ease and accuracy of reading. Thermopiles now measure the temperature inside the observation chamber. Resistance thermometer tells when the temperature of the gas sample has stabilized to temperature of fog chamber.



"Recold"
evaporative
condenser



Sensational because a new principle of engineering has completely eliminated corrosion in the fan section. For years, the flow of moisture laden air in the fan section has been a major problem to every user of evaporative condensers. Now Recold brings you the new DRI-FAN Evaporative Condenser that draws the warm air in through the fan section and expels the moisture laden air through the discharge stack. A revolutionary development that is a sensation in the industry. The coupon below will bring you full information.



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Los Angeles 22, Calif.

"RECORD"
7250 E. Slouson Avenue,
Los Angeles 22, Calif.

Please send me complete information regarding
the new "Dri-Fan" Evaporative Condenser.

Name

Address

City Zone State

MAN OF THE MONTH . . .

Continued from page 42

ation business just wasn't the kind of business which could stand the pressure of such a high-rent location.

But Jim had implicit confidence not only in the refrigeration industry but also in his own abilities. He was convinced that the refrigeration and air conditioning business had a terrific potential. He knew from his past experience the incalculable benefits which could result from the proper

kind of advertising. He was sure that splashing his company's name along the town's "main stem" would pay off in increased patronage.

You can draw your own conclusions as to whether Jim Terry or his competitors were right, but Dresco has remained in that costly layout right up to the present time. And the only reason that the company is leaving this location now is to move into a much larger and more elaborate layout on Linwood Ave. at Glynn Court.

In this new spot, which will give

Dresco a total of about 15,000 sq. ft. of floor space (more than that of any other refrigeration contracting firm in Wayne County) and a showroom where a customer can come in and literally *feel* a unit in operation, Jim hopes to see Dresco really blossom out into the fulfillment of all his plans and dreams.

Cupid Plays a Hand

Another event took place in 1944 which further changed the pattern of Jim Terry's life. At a party one night Jim met a charming Italian girl named Carmen Jotis. This, he promptly decided, was a friendship worth cultivating. He needed another girl in the Dresco office at the time, so he offered the job to her. She accepted this offer, and things worked out so well that it wasn't long before she accepted another job—this time on a permanent basis—as Mrs. Jim Terry.

Now Jim really settled down to making a going concern out of Dresco, because he realized that at last he was in business to stay. While the company's business had been strictly service at the outset, inasmuch as no new equipment was available, Jim was convinced that he could never make the kind of money in which he was interested merely by selling labor. He realized that no refrigeration sales organization could get along successfully without a sound service policy, but at the same time he knew that service alone, without the sale of parts and equipment, could never bring him the profit possibilities which he envisioned.

Plans Equipment Sales

Consequently, even before the war ended, he began to systematically contact equipment manufacturers. He knew their answer before he went in. He knew there was just no equipment available at that time. But at the same time he urged upon them the importance of looking to the future and lining up an aggressive distributing organization that could swing into action the moment new equipment was available.

As a result of this foresight, when the postwar lines of commercial and air conditioning equipment did become available, Jim found himself pretty well set up with the brands of products which he had elected to han-

"Sealing with Certainty" with

ROTARY SEAL

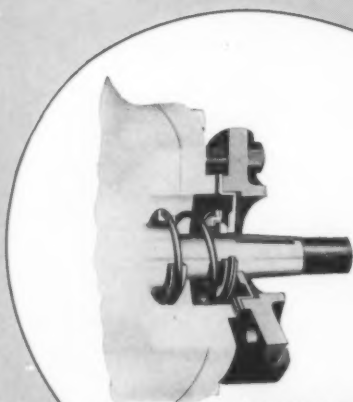
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**KNOWN THE WORLD OVER FOR
THEIR SIMPLICITY IN CONSTRUCTION,
INSTALLATION AND OPERATION**



Available for over 848 models as shown on our stock list and carried by all leading jobbers.



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dle. These lines include, at the present time, Worthington refrigeration and air conditioning units, Pleasant-air room coolers, Servel condensing units, United refrigerators, Taylor dairy and ice cream equipment, and Walrus soda fountains.

Jim advertised far and wide for top-notch service men at the end of the war, and he drew them from such distant spots as New Jersey, Florida, and Canada. They were attracted by the wages he offered, for Jim knew from his own varied experience that you can't get good men without paying them good money.

"The worst thing that can happen to any organization," he argues, "is to have employees with domestic diffi-

calls during the year's warranty period, whether the customer calls in for service or not.

This unique policy has two definite benefits. The first is that it provides Dresco with an ideal opportunity to break in any new servicemen which it may have by starting them out on these routine monthly inspection trips. The second, and most important, is that this regular attention educates the customers to the idea of appreciating and caring for their equipment.

Jim emphasizes this latter point by explaining to his customers that the

cost of the service contract for the second year will be based on the first year's service records on that installation. This admonition, he finds, tends to drastically cut down the number of unnecessary service calls.

Despite all this attention to service, however, sales—especially those of the creative variety—still are the cornerstone of Dresco's operations. Jim Terry is firmly convinced that you can sell anyone anywhere anything at any time, IF you use the right approach.

If you go about it right, he de-



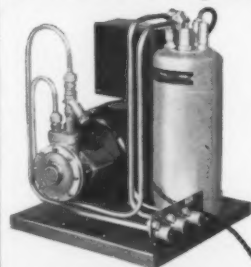
culties. And many such difficulties are brought about by financial problems of one sort or another. If you have an employee who is happy at home, your chances are much greater of having an employee who is more efficient on the job."

Jim puts his theories on this score into actual practice by paying his service men an average of \$100 per week and giving them a two-week paid vacation each year. In addition, Dresco provides each man with his uniforms and with a service truck, completely equipped except for hand tools. These trucks (there are nine of them) are each painted a different color. That way, Jim sagely points out, your customers know that you have more than one truck.

Another indication of the importance which Jim Terry places on service is the fact that the company makes a policy of selling a service contract right along with each new job. This contract provides for 12 free service



New TEMPRITE CARBONATOR achieves peak operating efficiency



MODEL CB-305 Temprite Packaged Carbonator is applied to existing cooling systems. Combination cooler-carbonator also available. Write for bulletins.

1. User gets up to 5620 glasses of highly carbonated water from a single tank of CO₂ gas. This is equal to 281 glasses per pound of CO₂ gas used.
2. No loss of CO₂ gas through purging or venting.
3. Offers completely automatic carbonation for use in soda fountains, taverns, coin operated beverage dispensing machines, etc.
4. Operates independently of city water pressure.
5. Complete assembly, ready to install and mounted on a rigid steel base, includes pump and motor. Measures only 13" x 16". Fits in practically any location.
6. Stainless steel, long-life construction.

TEMPRITE PRODUCTS CORP.

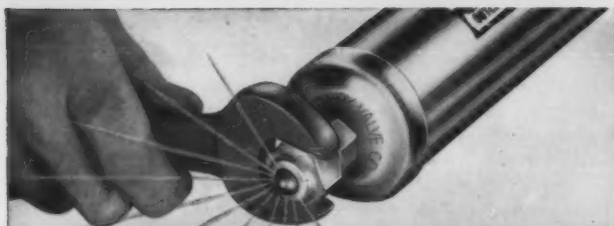
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Liquid Cooling Devices

41 PIQUETTE AVENUE

DETROIT 2, MICHIGAN



ON HENRY DRIERS
THIS

Hiss
MEANS OK!

The Hiss a Henry Drier emits when its seal cap is loosened is the escaping rush of dehydrated air sealed inside. This hiss assures you your Henry Drier does not leak and is in factory-dry condition. It means you are installing a 100% efficient, leak-proof drier on your job. It guarantees removal of all moisture from the refrigerant with practically no pressure drop. It means you can be completely confident in the drier you install.

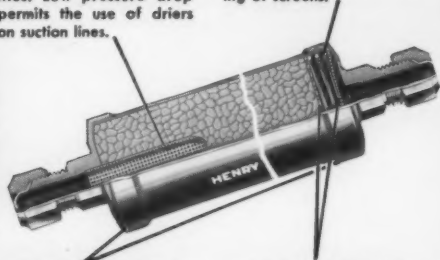
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PATENTED DISPERSION TUBE...prevents channeling, insures maximum utilization of Silica Gel to remove moisture and impurities. Low pressure drop permits the use of driers on suction lines.

SPRING COMPRESSED DEHYDRANT...exclusive Henry feature, keeps Silica Gel tightly packed, eliminates powdering or clogging of screens.



FORGED ONE-PIECE END CAP-FITTINGS...machined from one forging. Withstands all installation strains. Leak proof.

DOUBLE SCREEN PROTECTION...filters out particles as small as .003" diameter. Stands any system pressure.

Sold by leading wholesalers



Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications.

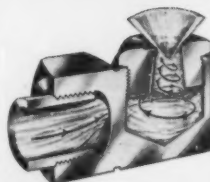
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Binks
ROTOJET

clog-proof
spray nozzles



Redesigned to embody latest post-war improvements, Binks famous Rotojet Spray Nozzles set a new high standard in spraying efficiency! Constructed on the off-center inlet, whirl chamber principle, Binks Rotojet nozzles provide fine, uniform fluid break-up and distribution at pressure as low as 7 lbs. Nozzles are precision-machined from tough, marine bronze, also stainless steel and any special alloys that are machinable from bar stock. Internal surfaces are smooth and free from vanes and other obstructions. Available in a wide variety of sizes and capacities.



Send today for technical
bulletin describing Binks ROTOJET
Nozzles.

Bulletins give full information on sizes and capacities of the following Binks Rotojet Nozzles:

Bulletin Numbers:

10. Small and Medium Capacity Nozzles
 11. Nozzles for Brine Spray Operation
 12. Large Capacity Nozzles
 13. Nozzles for Spray Ponds
 14. Nozzles for Metal Cleaning Operations
- Please state how nozzles will be used, and give capacity of installation.

THERE'S A BINKS SPRAY NOZZLE
FOR EVERY SPRAY JOB

Binks

MANUFACTURING COMPANY

REPRESENTATIVES IN ALL PRINCIPAL CITIES ■ 3124-38 CARROLL AVENUE, CHICAGO, ILL.

clares, it is just as easy to sell the type of deluxe jobs in which he specializes as it is to sell any run-of-the-mine installation. In support of this theory he cites a parable involving the lowly hamburger.

"The same person who pays 15 cents for a hamburger," he philosophizes, "will pay 55 cents for Salisbury steak or \$1.25 for chopped sirloin, yet he is still actually obtaining basically the same food value in each case. The difference lies in the way the article is dressed up, the way it is merchandised. And that's just the way we go about selling our refrigeration and air conditioning installations."

Jim not only sells his customers on this basis, but Dresco's records show that he keeps them sold. A repeat sale tally which reveals an average of three sales for every customer on the company's books testifies to that fact.

Organization Grows

Although Jim started Dresco as a one-man operation, the company has steadily expanded in nature until now it is a corporation, with Jim as chairman of the board. Other officers of the firm are: Michael Jotis, his wife's brother, president; Martin McCracken, the company's auditor, 1st vice president; Nick Nicholas, 2nd vice president; and James A. Kafcas, treasurer.

These men divide the administrative duties between them. McCracken, in addition to taking care of the auditing, also handles public relations. Kafcas is responsible for inventory control and purchasing. Nicholas concentrates his entire activities on the sales end of the business. Jotis functions as somewhat of a trouble shooter in both the sales and installation departments. And Jim Terry himself, of course, masterminds the whole show and personally sets a stiff pace for the company's sales staff.

At the present time the company employs about 25 persons, some 17 of whom are in the service and installation department under the direction of Chuck Heemstra, the service manager.

That, basically, is Jim Terry's business background. But his personal background has some interesting facets, too.

Jim Terry is of Greek descent. In fact his father was born just "two

hours from Sparta". And that, Jim explains, means not two hours by plane, train, or bus, but rather by horseback, which is the way all distances were reckoned in Greece at that time.

The family name originally was Terlikas, but Jim's father legally Anglicized it to Terry shortly after he had come to this country as an immigrant and had settled in Birmingham, Ala., where Jim was born. He made the change primarily to avoid the bigotry and intolerance which the Ku Klux Klan was then

leveling at all persons of foreign extraction.

Jim still speaks Greek fluently, and this fact, combined with his native understanding of the attitudes and problems of the foreign born, has been of considerable assistance to him in his dealings with restaurant and tavern owners, many of whom fall into this category.

Carmen Terry, too, is a first generation American, her mother having been born in Italy and her father in Asia Minor. This diversified ancestry results in some rather interesting

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PROMPT attention is given to new orders, with delivery schedules assured—

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things, gastronomically speaking, around the Terry household. As might be expected, the dinner menu generally leans rather heavily toward such Italian standbys as spaghetti and ravioli, or toward the traditional lamb dishes of the Greeks. And a demitasse of potent Turkish coffee is considered just the thing to round off such a savory repast.

Third member of the Terry family is little Georgie, who will be four years old next January. Of course it's a little too early yet to tell whether or not George will follow in his

father's footsteps, but when a little fellow of his age gets such an excited gleam in his eye when he talks about "playing with the motors" you can't help but wonder.

Building a business like Dresco doesn't leave too much time for extra-curricular activities, but Jim has somehow managed to find time to serve as a member of the board of directors of the Refrigeration Contractors Association of Detroit, in addition to holding down full memberships in the Refrigeration Service Engineers Society and the Engineer-

ing Society of Detroit and associate memberships in the American Society of Refrigerating Engineers and the American Society of Heating & Ventilating Engineers.

The Terry family home is an 8-room brick residence on Oakman Blvd. which Jim and Carmen had built for them a couple of years ago. Tastefully decorated in every detail, it exudes an atmosphere of quiet charm and gracious hospitality.

Focal point of all social activities in the Terry household is the exquisite walnut paneled recreation room in the basement. Built to Jim's own specifications and under his careful supervision, this room is equipped with a completely refrigerated (and well stocked) bar of the professional type. The only thing that's missing is the brass rail!

Adjacent to this lounge room is a completely equipped electric kitchen to simplify the preparation and service of food for party guests. This, of course, is in addition to the home's regular kitchen on the first floor.

Relaxes By Raising Roses

Jim's personal hobby is about as far removed from the refrigeration business as you could imagine. He grows roses. Actually he has a fondness for all types of flower gardening, but roses are his very special pets. "They're trickier to raise," he declares proudly, "but they're worth it!"

Currently he is dividing his time between experimenting with elaborate grafting operations on the row of rose trees which line his driveway and planning the layout of the extensive rose garden which he intends to develop on the lot next door, a piece of property which he bought for this express purpose.

To Jim his rose gardening seems the perfect hobby. "It's just what I need," he explains, "as a change of pace from the constant pressure of my business activities. No matter how tired or aggravated I may be when I come home at night, I'm a different man after spending 20 or 30 minutes puttering around with my roses."

Did we say that there seemed to be no connection between Jim Terry's business and his hobby? Maybe we were wrong, come to think of it . . . for both of them are beauties!

TIME-PROVED PA 100 DAVISON *Refrigeration Grade* SILICA GEL



PROCESSED ESPECIALLY
FOR THE DEHYDRATION
OF REFRIGERANTS

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ASK YOUR JOBBER for dehydrators charged with PA-100, Davison Refrigeration Grade Silica Gel . . . he also stocks it in bulk in the can with the blue label.

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REFRIGERATION WHOLESALER**

DOUBLE OR NOTHING . . .

Continued from page 32

The company started the war with a staff of 10 people, and wound up with 25 at the war's end. During the conflict, the firm installed an egg freezing plant, a dehydration plant, and outfitted 14 sub-chasers and 2 minechasers for the Government with complete refrigeration and air conditioning.

Gossett bought a lot of war surplus equipment and refrigeration parts when the war ended, and was ready for a vastly changed market. Franchises for an added number of lines of refrigeration parts and equipment were taken on, and the company soon found itself over-crowded.

Location is a "Natural"

Searching Nashville for a good location for a new building, Gossett hit upon what he feels is an ideal spot for a refrigeration and air conditioning firm handling extremely heavy equipment and yet desirous of a showroom exposed to public view.

This was a lot just to the right of a heavily-traveled street leading into the downtown district and adjacent to a viaduct, which meant that heavy trucks and equipment could travel under the viaduct, out of the traffic, while the showroom on the street-level could be seen by passing motorists.

Construction started on the new building in September, 1945, and the company moved in almost a year later. The new building has a 100-foot frontage, and it is a 3-story concrete, steel, and brick structure which runs 50 feet deep. It is divided into many departments.

Fabricating Shop Included

Built at a cost of \$110,000, it includes in the basement a huge shop for fabricating or assembling compressors, coil units, ductwork, and other large equipment all the way up to complete brine-tank systems for ice plants.

To allow plenty of room, the all-concrete basement was built with an 18-foot ceiling, which permitted installation of lofts on either side for refrigeration equipment. Overhead electric cranes carry heavy items from point to point, and the viaduct provides a handy "roof" for storing ma-

terials outdoors.

Also located in the basement is a large welding shop where coils and piping are prefabricated in a 45 x 20-foot space, a parts and tool room for mechanics, and similar facilities.

On the third floor, illuminated with glass-block windows and clear glass panes is storage for smaller refrigeration parts, and a recently added hotel supply department which carries electric cooking equipment, refrigeration, and other food service items. The company likewise has started up an industrial division.

On the second floor of the building, which is the street floor from a motorist's standpoint, is a 100 x 25-foot showroom.

Bright blue walls and a handsome reception desk enhance the showroom, and a row of executive offices are located at the rear. Back of Dalinger's office is a complete kitchen in which meals can be served for employees or guests.

The building, naturally, is completely air conditioned, and makes an excellent "sample" installation, according to Gossett.

Modern Equipment in Modern Refrigerators!

ROTO-TRAY

**SENSATIONAL, FLEXIBLE,
INDESTRUCTIBLE**

For The First Time . . .

ICE CUBES WITHOUT A STRUGGLE!



Removes ONE—TWO—OR ANY NUMBER of cubes, *instantly*,
by a simple twist of the wrist!

Eliminates for all time the nuisance of running water,
wet hands, half melted cubes.

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No frosting or freezing to refrigerator.

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16 cube Roto-Tray
11"x4 1/8"x1 1/2" \$1.69

12 cube Junior
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8 cube Single
10 1/2"x2"x1 1/2" \$0.95





MINI-VOLT

Instantly read voltages right off dial. 65 to 660 v. AC. Also DC. Virtually burnout-proof. Guaranteed for 10,000 hours' operation. Plastic case. 12" flexible test leads. And only \$2.75 list!

• Not only distinguishes between 110, 220 etc. volts, but measures line voltage close enough to show up to 2 or 4 volt drop between meter and lead terminals on 110 v. line.

• No refrigeration serviceman need now be without definite knowledge of whether faulty operation of motors, magnetic valves, etc. is due to improper terminal voltage.

• Checks for blown fuses, accidental grounds, circuit continuity. Useful for electrical troubleshooting in general.

• Warns of "live" wires and equipment, as protective measure.

It's a "must." Saves time, money, life and limb! Order from your wholesaler.

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ABOUT People

Marshall G. Munce has been elected a vice president of York Corp.

In this new capacity his major assignment will be that of representing top management in assisting and supporting the sales organization through trade relations and public relations activities.



Munce first joined York in 1921. Since returning in 1940 from an emergency assignment as managing director of the corporation's British subsidiary, he has been serving as assistant to the president, chiefly as coordinator between engineering, manufacturing, and sales

divisions, which activities recently were taken over by **J. Keith Loudon**, formerly with Armstrong Cork Co.

Richard S. (Dick) Dawson, vice president of Henry Valve Co.,



has been named western district manager for the company in charge of Henry's new West Coast office and warehouse at 736 E. Washington Blvd., Los Angeles. This new office will be headquarters for the company's activities in the Pacific Coast area, Idaho, Nevada, and Arizona. Emergency warehouse stocks will be maintained.

Clarence E. Gloekler has been appointed vice president of Bernard Gloekler Corp., Pittsburgh manufacturer of food service equipment. He is the grandson of Bernard Gloekler, the company's founder.

E. C. Hamilton has been named manager of the newly combined air conditioning and refrigeration distributor service department and air conditioning and refrigeration sales division of Worthington Pump & Machinery Corp. He will maintain headquarters at Holyoke, Mass. The company feels that the combination of these two departments will strengthen its field organization and improve the service rendered to its dealers. Hamilton has been associated with the Holyoke works since 1938, having



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7. Stockrooms containing hundreds of items and maintained at a large investment.
8. Adequate, up to the minute displays of merchandise which can be inspected at any time.
9. A business connection that does not compete with the trade by contracting for installation or service.
10. Sound, intelligent engineering advice which is always available when needed.
11. A business reputation backed by an organization of 13 years' operation according to approved business policies.
12. Every assistance to enable you to expand your business through prompt, efficient service.

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Your REWA Wholesaler cooperates with you — he does not compete with you. Service Engineers, Dealers, Contractors and other recognized trade outlets know that he never contracts for installation or service. This is an important point to bear in mind.

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MAINTAINING
OVER 300
CONVENIENT
OUTLETS**

H. S. McCloud, Executive Secretary

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to give you
the new, better

'SPEEDY' FLARING TOOL



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handle on
the job!**

No, we don't have any two headed engineers, but we still feel that two heads are better than one. That's why we put our heads together in designing the new "SPEEDY" FLARING TOOL for you.

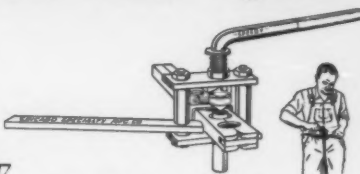
No longer need you bother tightening screws or setting clamps, and no bulky vise arrangements are necessary.

Made of case hardened, cold rolled steel with high carbon steel cam and flaring point.

SEE SPEEDY FLARING TOOL AT YOUR DISTRIBUTORS NOW!

Chicago Specialty Manufacturing Co.,

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"The Plumbing Specialty House"



Merely place tubing in the sizing bar and insert against stops which line up and center tubing. The cam action lever keeps tubing in a firm flaring position, acts as a brace against the body. A half turn of the crank and tubing is flared in a flash. Just as swift and as simple as that! The SPEEDY FLARING TOOL is the answer to your call for a swift, practical tool . . . simple to handle, always efficient.

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18 cubic foot
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Model 197

Choice of 4
popular models
to match every
family need.



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Model 167



12.5 cubic foot
Model 2127

You turn prospects into customers faster with the BEN-HUR Freezer franchise! You can offer every prospect COMPLETE-LINE-CHOICE . . . a BEN-HUR freezer that matches exactly the need of any family in your community—with 6, 9, 12.5, and 18 cubic foot cabinets that hold from 300 to 900 lbs. of frozen food.

Each of the FOUR popular BEN-HUR Models takes the lead in modern styling, convenience features, food freezing and storage efficiency—and operating economy . . . And in the home they promise customer enthusiasm through longer years of food savings and better meals.

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Years of use in all types of refrigeration equipment have proven Eston refrigerants are superior. All are of sustained high quality with exceptionally low moisture content. Servicemen say Eston refrigerants give better performance and more efficient operation. Eston jobbers are conveniently located. Write for complete information.

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on your next job choose a

MILLS

a condensing unit for
every installation

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been manager of the air conditioning and refrigeration service department since 1943.

Harry Richman has been appointed western sales manager of Fogel Refrigerator Co. Richman, who has been associated with the commercial refrigeration industry for the past 20 years, will supervise sales of Fogel equipment in all territory west of the Mississippi River. He will make his headquarters in Los Angeles.

Two new regional managers—Joel A. Wier in the southeastern territory and J. H. Seippel in the midwest territory—have been announced by the unit air conditioner



J. A. Wier



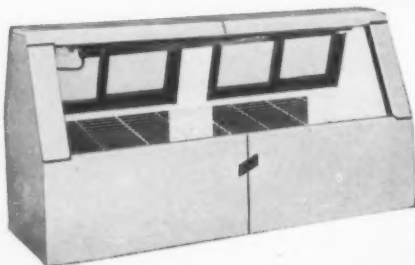
J. H. Seippel

TIME PROTECTED LINGLE

REFRIGERATION EQUIPMENT

The New Lingle Meat Display Case

THESE EXCLUSIVE LINGLE FEATURES



Design for Display
Cold Control Top Coil
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Low Initial Cost
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Available in 6, 8, 10,
and 12' double duty
models.

Lingle Walk-in Refrigerators, Dry Beverage Coolers, Meat Display Cases, Cold Storage Doors and Sectional Reach-in Refrigerators. See your Wholesale Jobber in your territory or write to the Kansas City office for complete sales information.

LINGLE REFRIGERATOR COMPANY, INC.

95th & Troost, Box 7111 Country Club Station, Kansas City 2, Mo.

division of Fedders-Quigan Corp. Wier, formerly sales manager for the heating division of Charles S. Martin Distributing Co. of Georgia, will cover the southeastern states from Tennessee and North Carolina to Florida, operating out of his headquarters at Atlanta, Ga. Seippel, who will headquarter at Evanston, Ill., has had extensive experience in product design and sales engineering of major appliances.

Two new district managers have been named by Penn Electric Switch Co. **R. L. Persons** has been given this post in the St. Louis, Mo. territory, while **F. X. Fessler** takes over in Dayton. Before joining Penn, Persons was assistant sales manager of a division of McQuay-Norris Mfg. Co., St. Louis. Fessler, before joining Penn, was general manager of Dayton Heating Supply Co. During the war he served as engineering officer and instructor with the U. S. Maritime Service.

CONTRACTORS . . .

Continued from page 36

September, 1951, also have been named. They are: E. B. Downer, Grand River Refrigeration Co.; A. G. Weber, Weber Refrigeration Co.; Michael G. Maksym, M. & S Refrigeration Service; William F. Mercier, Mercier & Spaulding, Inc.

Alexander S. McGhie, McGhie Refrigeration Service, has been elected to fill out the vacant term expiring September, 1949.

HUSSMAN ENGINEER CITES PORCELAIN ENAMEL USE

The application of zirconium porcelain enamel cover coats directly to the base metal in the manufacture of counter and reach-in commercial refrigerator parts will be described to the Porcelain Enamel Institute's Tenth Annual Forum by M. E. McHardy of Hussmann Refrigerator Co.

McHardy's plant report will be part of a panel discussion on low-temperature (1500°) enamels. It will cover one and two coat application of zirconium enamels direct to titanium-bearing killed steel and will discuss operational progress from the first field production run ever made to the current date.

Necessary fabricating and design changes involved, type of ware processed, and the methods and results of processing will be included by McHardy.

NATKIN COOLS PENNEY

The new J. C. Penney store in Jackson, Miss. is the latest unit in the Penney chain to feature air conditioning throughout the entire store. The 150-ton Westinghouse system was installed by Natkin & Co. of St. Louis, in accordance with specifications prepared by the Penney engineering department in New York City.

VA CONTRACT LET

A \$125,000 contract for construction of refrigeration facilities at the Biloxi, Miss., Veterans Administration center has been awarded to the Oden Construction Co., Hattiesburg, Miss., according to Maj. E. A. Hiller, manager of the center.

"ONE-STOP SERVICE"

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MOTOR PARTS

for all makes and models of electric motors, large and small.

CONTROLLER PARTS

for manual and magnetic starters, new and old.

INSULATION & WINDING SUPPLIES

a complete selection of magnet wire, varnish, slot insulation, lead wire, etc.

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everything for the shop from production ovens to commutator slotting saws.

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motors, starters, switches, controls, fans and appliances.

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- ★ Baked Dulux High Lustre Finish
- ★ Ventilated Kick Plate - Toe Room and no rust on bottom of Cabinet
- ★ Chrome Snap-lock Lifetime Hardware
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INCREASE YOUR PROFITS WITH THE NEW LOOK AMERICAN LINE

Bigger Manufacturing Facilities Than Ever

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Time to In-
vestigate
What the
Low Cost of**



**WITTE Dieselectric Power
Will Mean to YOU? . . .**

Reliable electric power for refrigeration, lighting, water-pumping and other needs is yours at cost with a simple, compact WITTE Dieselectric Plant. No electrical ignition system to short-out — WITTE Diesel units are full Diesels. They start and operate on readily obtainable Diesel fuel oil—require little room, care or fuel.

**Protect Yourself Against
Costly Interruptions of
Refrigeration and Light-
ing Power . . .**

Factory-tested 100% for power and performance, WITTE Dieselectric Plants are complete power plants. Figure the time, work, worry and money a dependable Dieselectric can save you in your plant. Write for descriptive literature that enables you to calculate savings a WITTE will provide for you year after year.

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DIVISION OF
DIXIE WELL SUPPLY COMPANY
UNITED STATES STEEL
CORPORATION SUBSIDIARY
AMERICA'S PREMIER BUILDER OF SMALL DIESELS KANSAS CITY 3, MO. U.S.A.

AGAINST LICENSING . . .

Continued from page 37

I believe the alternative would be working toward a good city code with a high enough permit fee so that ample inspections could be made of the work. On this basis, the person who puts in a bad job is not risking a license, for which he can reapply or the loss of which he can appeal, but he is risking the possibility of criminal action being taken against him because he has violated the law—the building code.

We have a new Heating Contractor's licensing law in Cleveland. Oh Boy! But the slick furnace man still operates in Cleveland. He still does furnace cleaning and resetting jobs for \$2, which gives him a chance to strew the parts of a good furnace around the basement, tell the unsuspecting customer they must have a new furnace, and then get \$900 for a \$500 job. But now he's a *licensed contractor*. The city gives him the right to do that.

His work can be shoddy. His materials and equipment can be inferior. He need not know anything about the

heating business. But, by golly, he's licensed!

Let's go back to the doctor. Are the two examples—medical man and refrigeration contractor—the same? No!

Now that we have removed the trees, let's take a look at the forest. The basic question is—what is the best way to keep the refrigeration industry clean?

The first answer would be self-discipline. Apparently that doesn't work.

I'd say the next answer would be control through a building code. Building codes are, I believe, designed for the protection of the health, safety, and property of the public.

The two common weaknesses of most building codes are not being up to date and not providing for proper policing. Let's work with our local and state administrations to foster better and stronger codes.

I believe that the basic need I mentioned above—keeping the refrigeration industry clean—can best be answered by good building codes which, by their strength and clarity, will make good work mandatory. Without them, a licensing law does the public no good.

A licensing law can definitely harm the public by the confidence the word inspires—because licensing does nothing to prevent poor craftsmanship, spurious advertising, poor design and engineering, insincere guarantees or nonperformance of contracts.

In my opinion—a licensing law is a clean skirt for dirty hands to hide behind.

LEONARD F. AUERBACH

FLORIDA HOSPITAL COOLS OPERATING ROOM

Equipment for air conditioning the operating room of the city hospital at Bartow, Fla., has been ordered installed by the city in response to the request of physicians on the hospital staff.

City manager Charlie Odom has been instructed to negotiate a contract with Central Oil Co. of Tampa, subject to the approval of hospital superintendent Bert Culwell. The Tampa firm's bid of \$1785 was the lowest of six received.

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REFRIGERATION WHOLESALER**

THE REFRIGERATION INDUSTRY

1949

**MODEL
FEDERAL
OPEN
CASES**

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THE NEW

Federal SELF-SERVE

TEN FOOT DOUBLE DUTY Model 3010

You add profits, enjoy greater sales, reduce labor costs, with this 1949 display. 5 great models . . . all with most advanced 1949 features.

Easy reach-in, fluorescent lighting, porcelain clad front . . . uses small space for large display. Great for fresh vegetables and fruits, dairy products, packaged meats, etc. Easily adjusted to high humidity for vegetables, normal dairy temperatures, and low-32° for meats.

Federal

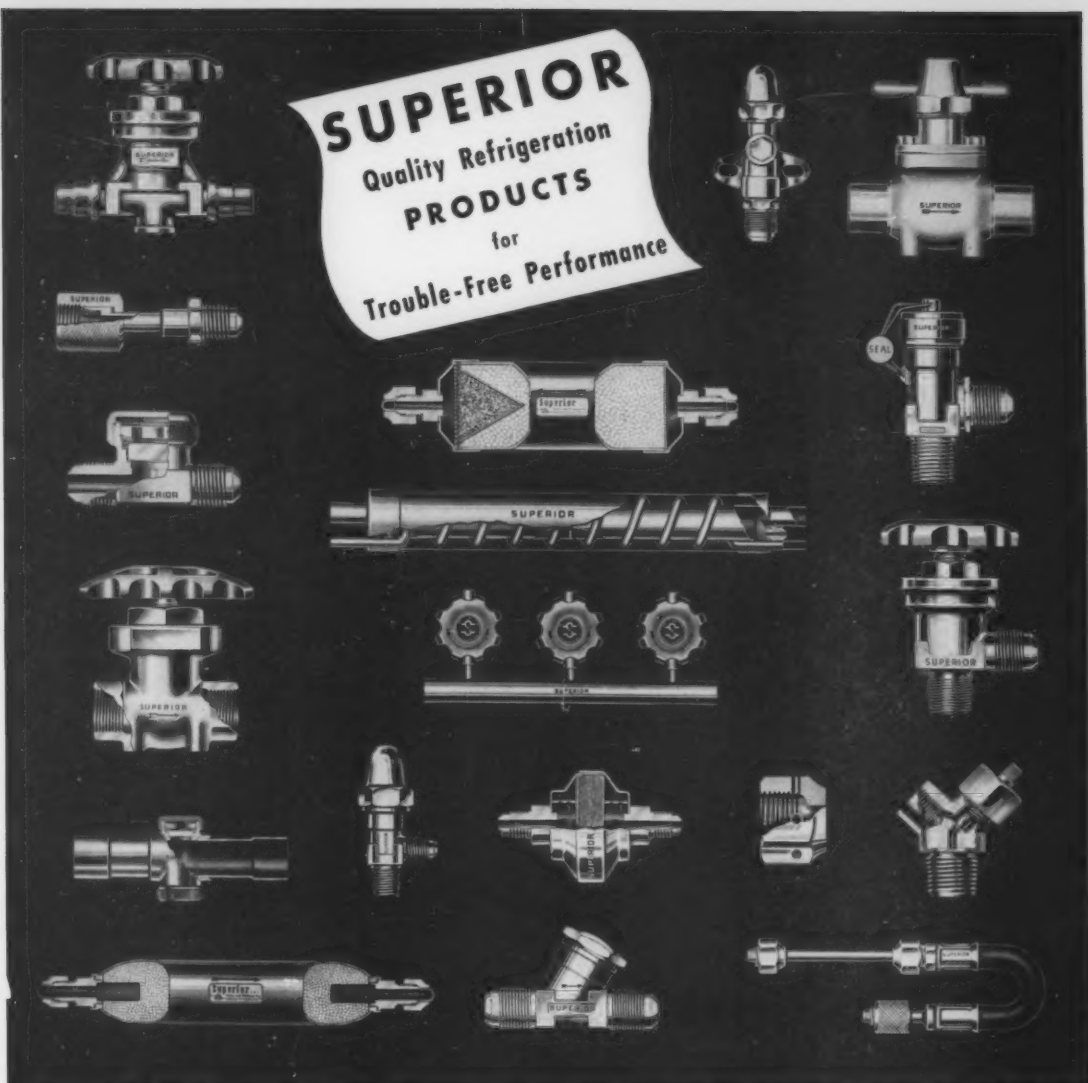
FEDERAL REFRIGERATOR MFG. CO.

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SUPERIOR
Quality Refrigeration
PRODUCTS
for
Trouble-Free Performance



Designed and Engineered for Maximum Performance

STRAINERS
CHECK VALVES
SIGHT GLASSES
QUICK COUPLERS
RECEIVER VALVES
REFILLABLE DRIERS
ANGLE GLOBE VALVES
PACKED GLOBE VALVES
CHARGING HOSE VALVES
PACKLESS ANGLE VALVES
PRESSURE RELIEF VALVES
UNI-HOLE COMPRESSOR VALVES
ECONOMIZERS (HEAT EXCHANGERS)
CYLINDER & SERVICE DRUM VALVES



FILTERS
MANIFOLDS
CHARGING HOSE
RAPID CHARGERS
GAUGE MANIFOLDS
PACKED LINE VALVES
SAE FLARE FITTINGS
PACKED ANGLE VALVES
PACKLESS LINE VALVES
HAND EXPANSION VALVES
NON-REFILLABLE DRIERS
DOUBLE PORT SIGHT GLASSES
HY-K ECONOMIZER ACCUMULATORS
PACKLESS BRANCH SHUT-OFF VALVES

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*** Service Engineer, Dealer
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Oil's ability to improve
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TEXACO *Capella Oils* keep compressors free of gum and carbon deposits—coils clean. So more efficient, trouble-free operation is assured—a solid basis on which to build an ever-increasing compressor oil business.

Seven advantages put *Texaco Capella Oils* out in front everywhere: 1) high stability, 2) freedom from moisture, 3) non-reaction with refrigerants, 4) great resistance to gumming and sludging, 5) very low pour tests, 6) convenient 1-qt., 1-gal. and 5-gal. sealed containers, 7) a viscosity range to meet requirements of all types and sizes of air conditioning and refrigerating compressors.

Texaco Capella Oils are fully approved by leading compressor manufacturers. You can increase your business with them. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

FREE LUBRICATION GUIDE. New edition. Lists make and type of compressor and refrigerants in 64 Electric Refrigerating Units and 39 Air Conditioning Units. Shows recommended grade of *Texaco Capella Oil* for each. Use Guide as wall chart, or bind into service manual.



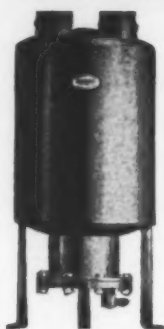
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FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT



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AMINCO OIL SEPARATORS



Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from 1/2 H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

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THE PRACTICAL Refrigeration Engineering MANUAL ... by Harold Smith

ATTENTION READERS!

○ Do You Have an Engineering Problem?
We May Have a Helpful Answer!

MONTHLY installments of the Practical Refrigeration Engineering Manual now have been running consecutively in THE REFRIGERATION INDUSTRY for a period of four and one half years. Chapters of this Manual have appeared in a total of 54 issues, starting with the first edition of the magazine in June, 1944.

We know that many readers have cut out and accumulated these Manual sections for future reference purposes. Throughout this entire series we have purposely kept away from long, drawn-out, technical engineering problems and explanations, so as to keep this series on an easy-to-read basis for quick and ready reference.

Anyone following the early engineering suggestions and using the tables contained in this series can proceed to lay out a satisfactory refrigeration installation for any type of application generally confronting the engineer in his work.

The next time you have a call for a refrigeration layout, refer to the chapter covering an installation of similar equipment and note the general recommendations it proposes. If you have a problem with a system already installed, check the chapter on this type of job. It may help you locate the cause of your trouble

and offer a suggestion helpful in solving the problem.

There are many books available covering technical engineering data and information. There are also many books dealing with detailed service problems encountered in everyday refrigeration service on all makes and types of equipment. The Practical Refrigeration Engineering Manual has been prepared to fill in the wide gap between.

We believe that all who have followed the suggestions which it has proposed have found much helpful and practical information so presented as to have been understandable to and usable by most field trained engineers when confronted with the prospects of selling and installing a refrigeration system, whether large or small.

This series has covered a wide range of installations for almost every application and purpose for which refrigeration is ordinarily used.

Throughout the publication of this series, we have frequently been called upon by readers for additional information on various problems. The answers have been given speedily as a service to engineers. We have not attempted to build up this part of the program, feeling that the series in most instances held the answer to the average questions.

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WHOLESALE EXPANDS

Opening of a new branch at Sioux Falls, S. D. has been announced by Thermal Co., Inc., St. Paul wholesaler of refrigeration equipment and supplies. The branch is located in a new building at 119 N. Fairfax Ave., and has ample showroom, office, and stockroom space. Robert Smith, who has been South Dakota field representative for Thermal, will be in charge.

Thermal Co. also announces the appointment of Harry J. Jessel as divisional sales manager of its Milwaukee branch, replacing Thomas F. Cross, who has resigned.

kee branch, replacing Thomas F. Cross, who has resigned.

NEW REWA MEMBER

Arnold Co., Sioux City, Iowa, refrigeration equipment wholesaling firm operated in partnership by Chester Arnold and Paul Kleinheksel, has been elected to membership in the Refrigeration Equipment Wholesalers Association. Kleinheksel formerly was connected with National Refrigeration Parts, also in Sioux City.

The writer of this series has had a long and varied experience in the refrigeration industry, extending over a period of more than 25 years. This experience has included sales, layout, field engineering, trouble shooting, service, installation, purchasing and many other related activities. Most of the suggestions or recommendations made throughout the series have been based on this long period of personal experience in dealing with both the

problems and people connected with the industry, together with the customers who buy the equipment.

Although we now have concluded the formal presentation of this Manual material, we hope to be able to continue to serve the followers of this series. We believe that we can serve them best and most satisfactorily through a question and answer program handled under this same heading.

We wish to urge our readers to write to the author of this series concerning any field engineering problem with which they may be confronted. Write for information on the best methods of installation and operation, for the most satisfactory type of equipment to be used for a specific application, for information regarding the controls of a particular system, or on any other subject which may present a problem on which you need some help.

Address all questions to:

THE REFRIGERATION INDUSTRY

Manual Department
1240 Ontario Street
Cleveland 13, Ohio

We can assure you that every question will be carefully analyzed and a frank, honest answer will be given. It is possible that you may give us a problem for which we are unable to supply a correct answer. If so, you may be sure that we will frankly advise you accordingly.


Some of the questions received and the answers provided will be handled directly between the author and the reader. Others of

these questions will be selected for answering in these Manual columns of the magazine each month, if the subjects which they cover appear to touch on problems involving information which might prove valuable to many of our readers.

The first of these questions and answers to be selected for publication will appear in this section of the magazine next month.

We plan to continue to make this department valuable to refrigeration men who need sound, practical answers to many of the problems which they encounter in the field. Do not hesitate to send in your questions. This is a service especially designed to be helpful to you all.

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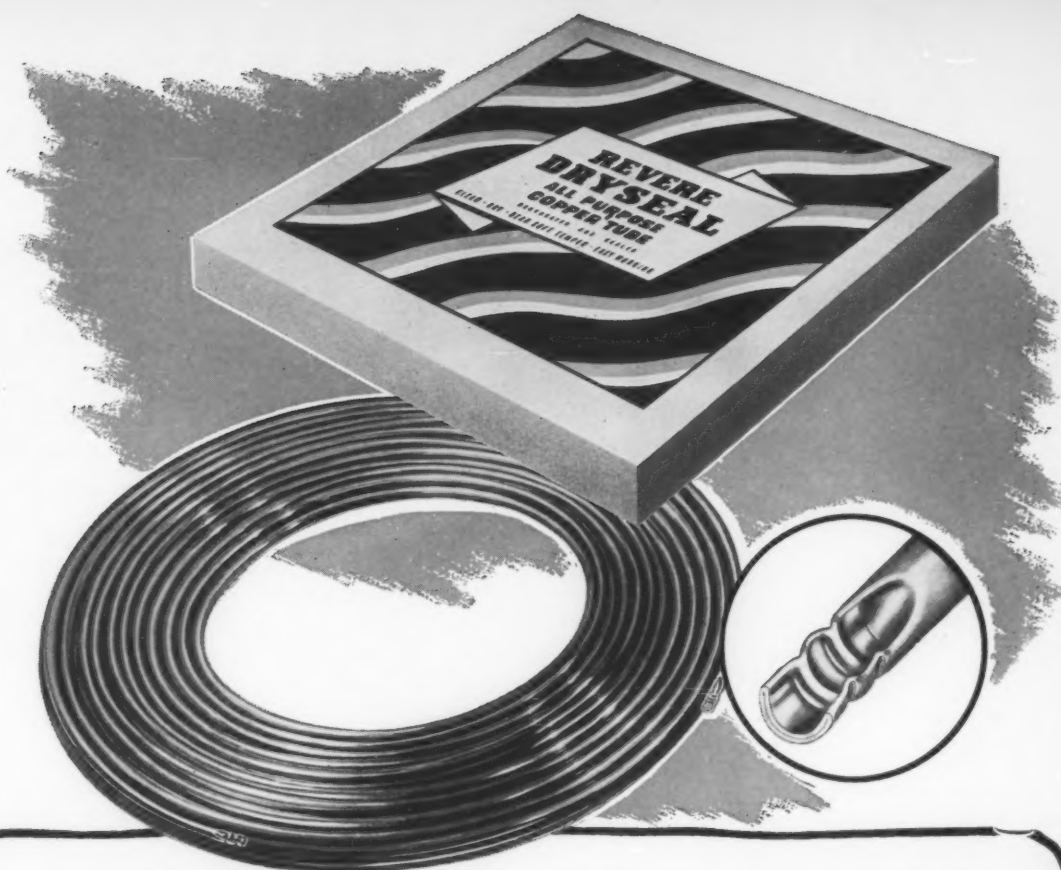


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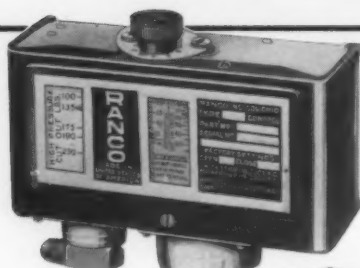
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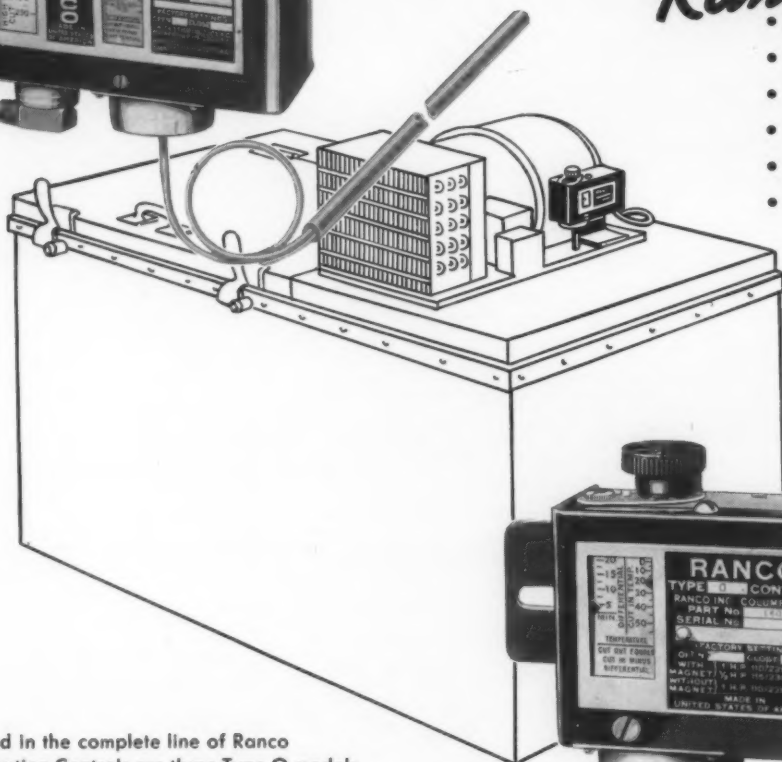
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THE SERVICE MAN'S DEPARTMENT

Here's how

Edited by
Warren W. Farr

Don't Always Blame the Valve!

When a refrigeration or air conditioning system is not functioning properly, do not arbitrarily blame the thermostatic expansion valve.

Valves are sometimes needlessly replaced when the trouble actually is due to improper installation of the valve or some irregularity in another part of the system.

Always make a thorough investigation of the entire system and make a definite analysis of the trouble before attempting to rectify it. Be sure you thoroughly understand the functions of the thermostatic expansion valve, its possibilities and limitations, and be sure it is properly installed before you decide to replace it.

If load temperature is too high, or if the valve does not appear to feed enough, the cause may be any of the following:

1. Moisture, water or mixture of water and oil frozen in the valve port or working parts of the valve.

Remedy: Heating the valve body temporarily frees the valve, but the moisture should be removed by taking the valve apart and drying it.

2. Strainer clogged with dried material, scale, or sand.

Remedy: Clean strainer.

3. Improper valve adjustment.

Remedy: Check superheat and readjust valve if necessary.

4. Lack of refrigeration.

Remedy: Add refrigerant and watch for improvement in operation.

5. Improper bulb location.

Remedy: Bulb should be located in same ambient temperature as evaporator.

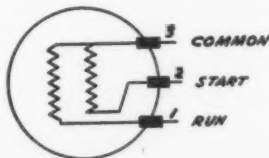
HAVE you ever been faced with the problem of determining the common, run, and starting leads or terminals of a split phase or capacitor type motor on a hermetic or semi-hermetic unit? You can select these simply and speedily merely by taking three readings with an ohm meter and making a simple diagram.

Here's how to go about it.

First, disconnect all wires leading to the three terminals or leads, including the capacitor. Give each terminal a number or letter as a means of reference. Then with an ohm meter take all the possible combinations of readings—that is, from terminals 1 and 2, 2 and 3, and 1 and 3.

The combination of starting and running terminals will show the highest resistance; starting and common will have the second highest; running and common will show the lowest.

For example, suppose that on a hermetic unit you obtain the following readings: 1 and 2, 10 ohms; 2 and 3, 7 ohms; 1 and 3, 5 ohms. Note that the highest reading is on 1 and 2, second highest on 2 and 3, and lowest on 1 and 3. Thus, making a simple diagram and following the rules outlined above you obtain the following result:



In the event that there are four leads coming out of the winding, you can be sure that two are starting and two are running. One starting lead and one running lead connected together form the common lead. The reason for having four leads is to make possible a change in the direction of rotation. On all hermetic units except early Gibsons, however, only three leads or terminals will be found.

Oliver K. Rolf,
Schenectady, N. Y.

6. Valve too small.

Remedy: Check selection guide for valve rating.

7. Gas in liquid line.

Remedy: Install over-size valve or cool liquid to condense gas.

8. Feed-back from another valve.

Remedy: Check bulb temperature and calculate superheat. If this is normal and too little refrigerant is flowing through the evaporator, check piping of suction line and change piping if necessary.

9. High pressure drop through the evaporator.

Remedy: Check with pressure gauge at evaporator inlet. Use external equalizer if over several pounds.

10. Short-circuiting of evaporator. (The symptoms will be the same as Condition No. 8.)

Remedy: First check the outlet temperatures of all paths through the evaporator either with a thermometer, by feeling, or by observation of frost or moisture.

Cleanable Filters Need Oiling, Too

Any cleanable air filter is only as good as the oil or adhesive with which it is coated. After cleaning a washable type filter it must be re-oiled, generally with an adhesive recommended by the manufacturer.

This recoiling process is a very simple matter. The filter can be immersed in a tank containing the oil, or an ordinary hand spray gun may be used to spray both sides of the filter. After applying the adhesive, the filter should be allowed to drain

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for a period of approximately 24 hours before it is put back into use.

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TIME can be saved in charging a high side float system in this manner, if the entire charge has been lost.

Pump a deep vacuum and then charge the unit through the high side until float starts to rise. Stop charging at this point and start up the unit. A very little bit more has to be added through the low side to finish charging the system.

Melvin Lembke,
Detroit Lakes, Minn.

Question:—What is the best way to reclaim drying agents? Is it true you cannot successfully bake out driers?

Answer:—It is not considered economical to attempt to reclaim drying agents. It is better practice to discard the used material and refill with new drying agent.

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You don't have to be a writer or a literary genius! Just dot down some of the shortcuts you've developed in your maintenance or installation work and send them to **HERE'S HOW** EDITOR, REFRIGERATION INDUSTRY. Your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

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Rates: for "Positions Wanted", \$3.50 minimum, limit 25 words. For all other classifications, \$4.00 minimum for 25 words, each additional word 15c; boldface type or all capitals,

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Selected group of men, graduates of well-known trade school, desire employment in Refrigeration Field. Will travel anywhere. Qualified in domestic and commercial refrigeration. Reliable. Contact Placement Dept., Eastern Technical School, 888 Purchase Street, New Bedford, Mass.

Refrigeration Graduate desires job, sober, reliable, can furnish references. Write: James De Carlo, Laurel Ave., Elm Grove, West Virginia.

BUSINESS OPPORTUNITIES

FOR SALE—(in TEXAS)—A refrigeration business large enough for four service men, have two service trucks, a lot of equipment on hand with eleven county dealership, commercial and domestic sales and service, as I have to go to the hospital for a long stay, will sell all for \$9500.00; long lease on building, low rent. Write in care of Box 9248, Refrigeration Industry.

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This material, it is claimed, has been found to simplify the job of insulating together the suction and liquid lines leading to the compressor unit. By insulating these lines together, a heat transfer is effected between the two which results in an 8 to 10% increase in refrigerating efficiency, it is claimed.

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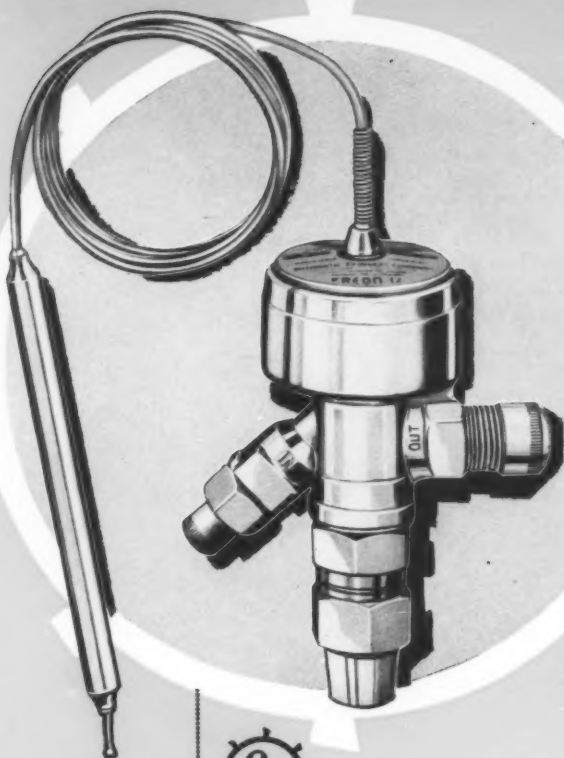
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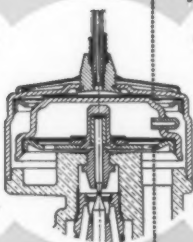
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